

CONTENTS

THE ORIGINS

CONTENT, AIM & OBJECTIVES OF ALL COURSES

INDOOR ROWING IN SCHOOLS

TECHNIQUE

TECHNICAL FAULTS & SOLUTIONS

THE PERFORMANCE MONITOR

ICT

BASIC MAINTENANCE

HEALTH & SAFETY

SUPPLEMENTARY MATERIALS

TEACHING RESOURCES

TESTING

INCENTIVES

FUNDING

CREW CLASS

ADVANCED INSTRUCTOR

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The Concept 2 Indoor Rower was first developed in 1981 by a group of rowers in Vermont (USA) as a means to continue training through the winter when the water was frozen.

Since then the Indoor Rower has evolved to become one of the most widely used pieces of gym equipment. The secrets of its success are its simple design and its wide appeal to all kinds of user—whether occasional home exerciser or keen racer, old or young.

The rower has gone through many changes...



Model A



Model B

...but the important parts are still essentially the same, the user still creates their own resistance by pulling a handle that is attached to a chain and operates an air resistant flywheel.

Our unique Performance Monitors come as standard on all models, and they make all the difference.

Users can customise workouts, record and download training data and race against each other.

By far the most important feature of the Concept 2 Performance Monitor is that the times and distances are directly comparable between all machines. This is unique to the Concept 2 Indoor Rower and is why it has been able to give rise to a totally new sport with its own National, European and World Championships.



HINT:

Find out more about the Performance Monitor and what it can do in the ICT section.

Indoor Rowing is regarded by many as the complete exercise and allows everybody to enjoy the sport. The Concept2 Indoor Rower offers many benefits:

- **It provides a superb aerobic work-out.**
- **It exercises every major muscle group.**
- **It is a time-efficient form of exercise and an excellent stress-reliever.**
- **It is weight-supporting and non-jarring and ideal for rehabilitation exercise.**
- **It can be a very effective weight management exercise.**
- **It is air resistant and therefore suitable for anybody of any age.**
- **It provides a smooth, rhythmic movement which is both safe and enjoyable.**
- **The performance monitor provides immediate feedback.**
- **It can be enjoyed in the comfort of your own home.**
- **It has developed into a sport in its own right.**

Research directed by Dr Fritz Hagerman, Chairman of the International Federation of Rowing Associations (FISA) Sports Medicine Commission, shows that exercise, even begun late in life, can improve both physical and mental health, and can also delay ageing.

There is considerable further evidence that regular exercise can lower blood pressure and diminish the risk of a range of ailments, from heart attacks to strokes, obesity, diabetes, and indeed some forms of cancer.

Research from Finland indicates that engaging in endurance activities can increase longevity by six years over the couch potato. In endurance sports the primary emphasis is on cardio-respiratory fitness – the conditioning of the heart, blood vessels and lungs.

The Indoor Rower, often wrongly used solely as a 'warm up' machine, is perfect for developing endurance and provides an excellent balance of fitness benefits.

For more information please visit **www.concept2.co.uk**

Concept2 Instructor Course

Aims:

To train instructors to deliver quality coaching to users of the Concept2 Indoor Rower by:

- the ability to demonstrate safe, sound, rowing technique
- the skill to teach a newcomer to the machine how to row safely and with good technique
- the ability to identify technical faults and correct them

Objectives:

At the end of the course candidates should have a good knowledge of:

- The technique and faults DVD
- The components of the rowing stroke
- Instructing the basic stroke
- Identifying and resolving basic technical faults
- Basic monitor functions
- Routine care and maintenance of the machine
- Health and Safety issues

Assessments:

There are three assessments during the late afternoon:

- Preliminary Technique Assessment (20 minutes). Correction & advice offered at this stage
- Written Assessment (20 minutes). Straightforward check of understanding of some of the basics covered during the day
- Practical Assessment (30 minutes). Working in pairs, acting alternately as beginner and coach. As a beginner, assessed on technical skills. As a coach, will take the newcomer through the Basic Induction

Personal Performance:

Candidates will be expected to have sound, safe technique and to demonstrate competently:

- The teaching sequence
- The components of the full stroke
- Good rhythm and ratio in the stroke
- An awareness of any faults developed and an understanding of how to correct them

Basic Induction:

All Concept2 Approved Instructors should be able to take newcomers through an effective introduction to the use of the machine. It should take no more than 15 minutes, and include the following:

- **Benefits** - Brief the user about how the Concept 2 Indoor Rower can be used as part of a fitness programme, for both aerobic and anaerobic work
- **Pre-workout** - Show the user the safe pre-workout set-up
- **Monitor** - Explain the basic monitor functions (time, distance, stroke rate, stroke output)
- **Damper Setting** - Briefly, and avoiding technicalities, explain damper settings. Recommend level 3
- **Technique** - Carefully coach the beginner through the Teaching Sequence
- **Rhythm** - Establish a good stroke rhythm/ratio 2:1
- **Faults** - Correct any technical faults.
- **Post-workout Etiquette**

Concept2 Instructor Course – Outline

10.00	Welcome	
	Intro	(10 min)
10.10	Technique	(15 min)
10.25	Practical Technique	(30 min)
10.55	Discussion and questions	(5 min)
11.00	Practical Session	(20 min)
11.20	Drink Break	(10 min)
11.30	First Prelim Assessment	(30 min)
12.00	Discussion and questions	(5 min)
12.05	Lunch	(60 min)
1.05	Faults and Solutions	(20 min)
1.25	The Monitor	(20 min)
1.45	Written Assessment	(20 min)
2.05	Drink Break	(5 min)
2.10	Second Prelim Assessment	(30 min)
2.40	Discussion and questions	(10 min)
2.50	Practical Assessment	(15 min)
3.05	Final questions	(20 min)
3.30	Finish	

Concept2 Schools Teacher Training

Aims:

To provide a practical knowledge of how to use indoor rowing in lesson time and clubs by:

- the ability to teach safe, sound rowing technique
- lesson ideas for a full class of children using only 5 rowing machines
- how to engage kids in a variety of competitions
- how to use ICT within lessons and clubs

Objectives:

At the end of the course candidates should have a good knowledge of:

- safe use of indoor rowing in schools
- components of the rowing stroke
- using the monitor
- lesson ideas
- how to adapt the lesson ideas for their own groups
- how to set up a variety of competitions
- how to run team and relay sessions
- using Venue Racing software
- benefits of the Schools League
- the use of ICT with indoor rowing
- cross-curricular uses for rowing

Assessments:

Candidates are assessed on their technical skill by the Master Instructor, who will also give individual instruction/correct faults and answer individual questions.

Personal Performance:

Candidates will be expected to have sound, safe technique and to demonstrate competently:

- The teaching sequence
- The components of the full stroke
- Good rhythm and ratio in the stroke
- An awareness of any faults developed and an understanding of how to correct them

Introduction

Indoor Rowing is a mass participation, grass-roots activity, with more than 1.5 million people working out on the machine every month in the UK alone. It is one of the fastest growing participation sports and provides an opportunity for schools to offer a new activity, which pupils can continue out of school hours and after leaving school.

At Concept2 we want to do our bit to help children to learn about healthy living, and schools to achieve their Physical Activity and Competition targets. Please read on to find out how you can benefit.

The Concept 2 Education Programme has been providing high quality teaching and training information for teachers and pupils since 1996. This Schools' Training Guide pulls together all the information you need to introduce and run Indoor Rowing in your school. It includes guidance on technique, schemes of work, lessons plans and other teaching resources as well as information about raising money for, and with, Indoor Rowing.

You can also access a wealth of free information and resources through the Schools section of the Concept 2 website at www.concept2.co.uk/schools



Gateway Activity

The Concept 2 Indoor Rower is a fantastic gateway activity for schools. It promotes health and wellbeing, helps tackle obesity and introduces children of all abilities and persuasions, to an enjoyable and rewarding physical activity.

Beyond on-water rowing, Concept2 Indoor Rowers are used by a wide range of sports, from Sailing and Triathlon to Rugby and Football, as an activity that allows accurate testing of fitness and power development as well as a safe and time-efficient means of developing aerobic endurance.

In addition to sports, many of the armed and uniformed services use the Concept2 within their fitness testing programmes.

Accessible

Indoor rowing is suitable for almost all children. The design of the machine and the safe, weight-bearing and air resistant nature of the exercise makes it especially beneficial to those with special needs. Adaptations can be made to the rower to accommodate quite severe physical disabilities and the fact that it is a closed activity appeals to those with learning disabilities.

Cross-curricular

Cross-curricular teaching is one of the Indoor Rower's strengths and it can easily be used to bring physical activity into other areas of the curriculum. The Indoor Rower is a valuable tool in the delivery of Physical Education, Anatomy and Physiology, the Sciences, Mathematics and Information Technology. It is also used widely for team building and personal development days within schools, and can be especially motivational for hard-to-reach pupils and those who have little interest in mainstream sports.

Sport & Competition

The Concept 2 Indoor Rower has even spawned a sport in its own right for which the British Indoor Rowing Championship is the 'blue riband' event. It is the largest event of its kind in the world and in recent years, almost half the competitors have been school age children.

Schools all round the country have embraced Indoor Rowing. The Concept2 Schools Indoor Rowing League is free to enter and open to all schools. It allows any school with access to one Concept2 Indoor Rower to take part in a national team event without ever having to leave the school gates. More information can be found at www.concept2.co.uk/league

PESSCL (PESSYP) – Physical Education, School Sport and Club Links

PESSCL (PESSYP) is the government's strategy to increase the take up of high quality Physical Activity, PE and School Sport among 5 -16 yr olds. The original target of 2 hours high quality physical activity is now broadly being achieved and the government's aim over the next few years is to increase this to 4 hours and beyond.

Indoor Rowing is a great tool for engaging those not attracted by traditional PE, such as the obese, SEN pupils, ethnic minorities, key stage 4 girls and other hard-to-reach groups.

Schools

Sport promotes a powerful, positive image and is an essential part of any successful school. Indoor Rowing raises the profile of a school and offers considerable benefits, including:

- All schools compete on an equal footing.
- It is an all weather activity.
- It appeals to both boys and girls equally.
- It has appeal to over-weight, disaffected and hard-to-reach pupils.
- It works well in a variety of Special Needs situations for both learning and physically disabled pupils.
- It is a safe activity.
- Indoor Rowing adds to the variety of sports on offer in a school and is especially suited to pupils who find traditional PE unappealing.

Curriculum and education

There is a carefully structured education programme for teachers and support staff, with a range of clear support materials and resources.

Indoor rowing is an excellent tool for use across the curriculum. The Performance Monitor, with its data-capture and easy download functions, enables detailed and accurate records to be maintained. These can be used to monitor progress and plan training, to provide data for use in other subjects or as evidence for Records of Achievement and reports.

The ability to measure and record heart rate during exercise opens up a wealth of possibilities for detailed practical studies in curriculum areas including Biology, Human Biology, Sports Studies and Sports Science.

Schools Indoor Rowing League

The Concept2 Schools Indoor Rowing League is a national tournament in which boys and girls race for their school in year group teams. It is open to years 5 – 13 and adults/teachers and is performed in a relay format on one Indoor Rower.

Promotional

Indoor Rowing lends itself to a wide variety of fun, motivational and fundraising events that need very little organisation by staff to be a success. You can publicise your innovative and exciting events and achievements through Concept2 newsletters and websites. Individual and team efforts are also recognised.

OSHL and Extended Schools

Schools throughout the UK are setting up breakfast, lunchtime and after-school indoor rowing clubs for pupils and the wider community. These clubs are proving a great success and are another avenue to introduce the idea of enjoyable physical activity to pupils, teachers and the community.

Pupils

Pupils enjoy working on the Indoor Rower. They will 'have a go' and relish the opportunity to do something different.

An Opportunity for Individual Work

Indoor Rowing can be a happy alternative for pupils who do not enjoy team games, gymnastics or athletics. It is a welcome opportunity for them to work individually at their own level and with a degree of privacy. The performance monitor feeds back their results immediately, is controlled by them and is attractive to pupils who like to work with technology.

Indoor Rowing is attractive to pupils who enjoy working independently, who wish to control their own experience and who want to plan, perform and evaluate their own work.

Many Applications

Indoor Rowing meets a wide range of pupils' needs.

- **It is a top-rate cardio-vascular machine, ideal for all forms of fitness**
- **It is weight-bearing, and so an excellent aid for those wishing to manage their weight or who find other forms of exercise uncomfortable or embarrassing**
- **It may allow pupils with a variety of disabilities to exercise safely and have fun**

Curriculum Links

The up to date technology of the performance monitor and heart-rate facility, gives pupils the opportunity to study the effects of exercise with their own, reliable data.

For details of the extensive ICT capacity of the Performance Monitor refer to the ICT section

Records and Evidence

The performance monitor makes it is easy for pupils to keep a check on their work and progress. They can keep clear records of their efforts and achievements and provide valuable evidence for ROAs.

Indoor Rowing adds interest to Records of Achievement, CVs or university and job applications.

Competition

Pupils can easily use Indoor Rowing to access all the fun and excitement of competition. It is ideal for both inter- and intra-school events, and there is even a free nationwide competition through the Concept2 Schools Indoor Rowing League.

Pupils can help to prepare, publicise and organise competitions and to collect, collate, analyse and distribute results and data, which all help to forge cross-curricular links

Ongoing Participation and Progression

A major benefit for young people who enjoy Indoor Rowing is the possibility of continued participation beyond school. Most gyms and leisure centres now have Indoor Rowers, and local rowing clubs will offer access to coaching and on-water rowing.

There are many opportunities for those with ability, to progress to higher levels. Indoor Rowing is a sport in its own right, and there are many competitive events. Concept 2 has a wide range of incentives at all levels and for all age groups. To view the events calendar please visit

www.concept2.co.uk/schools/calender.php

The Indoor Rower has a wide range of potential uses and benefits for schools and pupils.

For more ideas and information please visit
www.concept2.co.uk/schools

The Exercise

Indoor Rowing provides an excellent and thorough workout for almost every major muscle group in the body as well as working the heart, lungs and circulatory system in a complete range of intensities.

The weight-bearing nature of Indoor Rowing means it can be used to introduce physical activity to those who have previously taken little or no exercise. It is perfectly suited for general fitness work and works well as part of a weight management programme.

Being so versatile, and such an excellent means of improving both aerobic and anaerobic fitness, the Indoor Rower is great for cross training and complements many sporting activities.

And, of course, the performance monitor is central to all these possibilities, feeding back information on progress, storing data for later use and motivating users while on the machine.

HINT: For those interested in using the Indoor Rower for training, there is a lot of information available on the Training page at **www.concept2.co.uk**

If you have any doubts, questions or queries about anything regarding your indoor rower, please call Concept2 on 0115 945 5522 or email info@concept2.co.uk We will be glad to talk you through anything you are unsure about.

Initial Setup

Each machine comes with clear instructions for assembly and set-up. Which can be found at: www.concept2.co.uk/rower

Starting to use the machine

Staff will want to be familiar with the basic functions of the machine before introducing it to pupils. It is well worth spending a little time learning correct technique and the ICT elements in order to fully benefit from the exercise.

We strongly recommend that all staff who will be introducing Indoor Rowing to pupils complete a Concept2 Teacher Training Course.

When introducing new users to the machine, the Concept2 Technique DVD illustrates good technique, and helps introduce the teaching sequence. Identifying and correcting faults early saves time and increases users' enjoyment.

A member of staff will usually do the coaching in class, but a pupil who is an experienced user, or a Junior Leader, might also assist in helping teach good technique.

Storage

When not in use, the machine can be split into 2 parts for easy storage. This process only takes a few seconds.

Health & Safety

The Health & Safety section provides full guidelines. However you may wish to post some simple guidelines near the Indoor Rowing area. We suggest a good starting point is:

- Only use the indoor rower after instruction
- Tie long hair back and up and tuck in loose clothing
- Always row with both hands holding the handle
- NEVER let go of the handle while rowing
- Do not twist the chain or pull it from side to side

HINT:

We have included a section for pupils within this handbook. Please feel free to photocopy relevant sections to use as a handout

During Normal PE Lessons

- For individual pupils who cannot participate in the planned lesson due to minor illness or injury (the machine is weight-bearing, and can be used for gentle exercise).
- As part of a circuit.
- When a variety of activities is offered.
- For pupils for whom team games or traditional activities are inappropriate. Pupils who may have problems participating, for any number of reasons including weight problems, might well be able to benefit from time on the machine.

It is a safe, indoor exercise which can be done without supervision after initial instruction.

During Non-Sport Lessons

- Indoor Rowing offers the opportunity to develop cross-curricular links with ICT, Mathematics, Science and PSHE.

For Fitness Training

- Indoor Rowing is excellent for cross-training, particularly for improving cardio-vascular fitness. Users can workout in safety and comfort, even when the weather is bad. Team members, athletes and players or any individual who wishes to bring variety into their training, can make effective use of the machine.

For Personal Development

- Instant feedback from the performance monitor means pupils can easily record their efforts, their personal endeavours and accomplishments, which can then be used in their Records of Achievement.
- Concept 2's incentives programmes may motivate some pupils. For more information please visit the distance award scheme page at www.concept2.co.uk/schools



Examples of the Concept2 Distance Award Scheme downloadable certificates

- There are many opportunities for competition - individual, inter-form, inter-house, inter-school, even on the internet. It is also possible to consider competitions or activities between staff/parents/pupils, as well as sponsorship and fund-raising events. It is vital that competitors should observe safety procedures, particularly that they should warm-up prior to competition.

Individual Competition (can often be organised by pupils)

- Lunch time 30 second sprint for all-comers. Set the timer for 30 seconds and record the distance covered. Age-group winners, boy and girl. Best pull. Warm up. Row 7 strokes hard. Record the best split (i.e. the lowest figure on the central display).

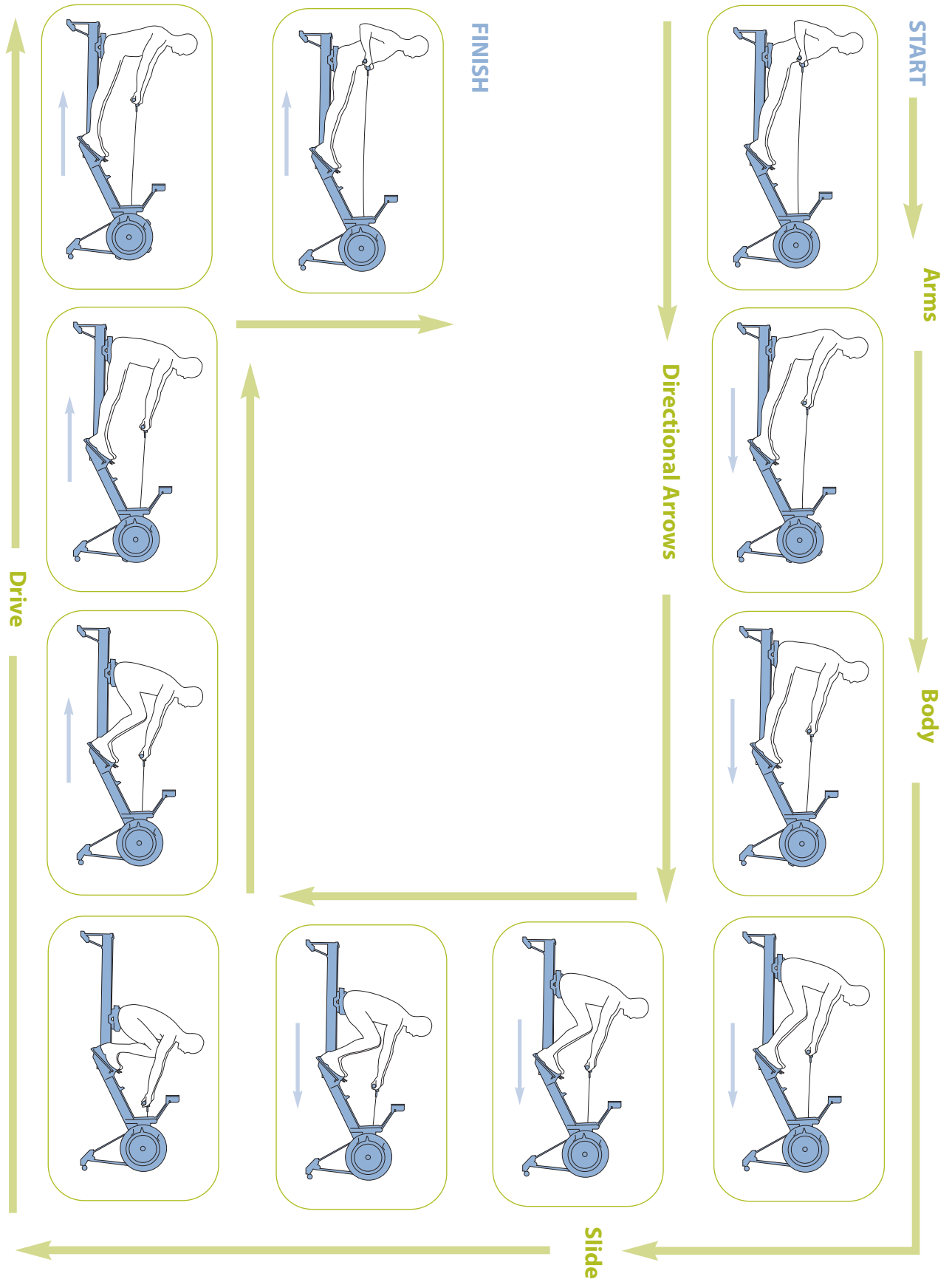
Team Competition Formats:

- Year or House group teams of 8 (4 boys and 4 girls) or teams of 4 (2 boys and 2 girls), each row 500 metres (or one minute, if time-row is preferred). Winning team records lowest accumulated time (or highest accumulated distance for time-row).
- Teams of 10 or 11 (any gender mix), 2 from each year group and 1 teacher for teams of 11. Each member rows a set time on a sliding scale - year 7, one minute; year 8 rows two minutes; year 9 rows three minutes; year 10 four minutes and year 11 five minutes. The shortest and longest distances are discarded, leaving the middle three to score, thereby encouraging the whole team and not individual performance. A similar competition can be done using ten in the team; one boy and one girl from each year group.

Award points for the result:

1st = 5 points, 2nd = 4 points, 3rd = 3, 4th = 2, 5th = 1

Total the points to find the overall winner, year group winner, girls' competition, boy's competition.



To get the best results from your Concept 2 Indoor Rower, you should spend some time practising correct rowing technique. Begin by looking at the Concept 2 Technique DVD and read this section carefully. The effort that you put in during the early stages to develop good technique will subsequently improve both your performance and enjoyment from exercising on the machine.

Developing Good Technique

This section is structured in the same way as the DVD. We begin by providing an overview of the rowing stroke and then break the stroke down into an easy to learn sequence of movements. This is separated into two clear stages:

Stage 1 - The Arm and Body Movement

Stage 2 - The Slide

Practise each element of these stages before progressing to the next. Make sure you have mastered all the points of technique in Stage 1 before moving to Stage 2. Provided you follow this easy to learn sequence you should develop a very safe and efficient technique. However, if you have already developed some faults the section on fault identification will be invaluable. It clearly illustrates a number of the most common technical errors with their solutions.

Developing Rhythm

When you have mastered the rowing stroke and are clear about the sequence of movements you can begin to develop rhythm in your rowing. Rhythm is the time relationship between the Drive and the Recovery. The ratio is about 2:1; with the Recovery taking about twice as long as the Drive.

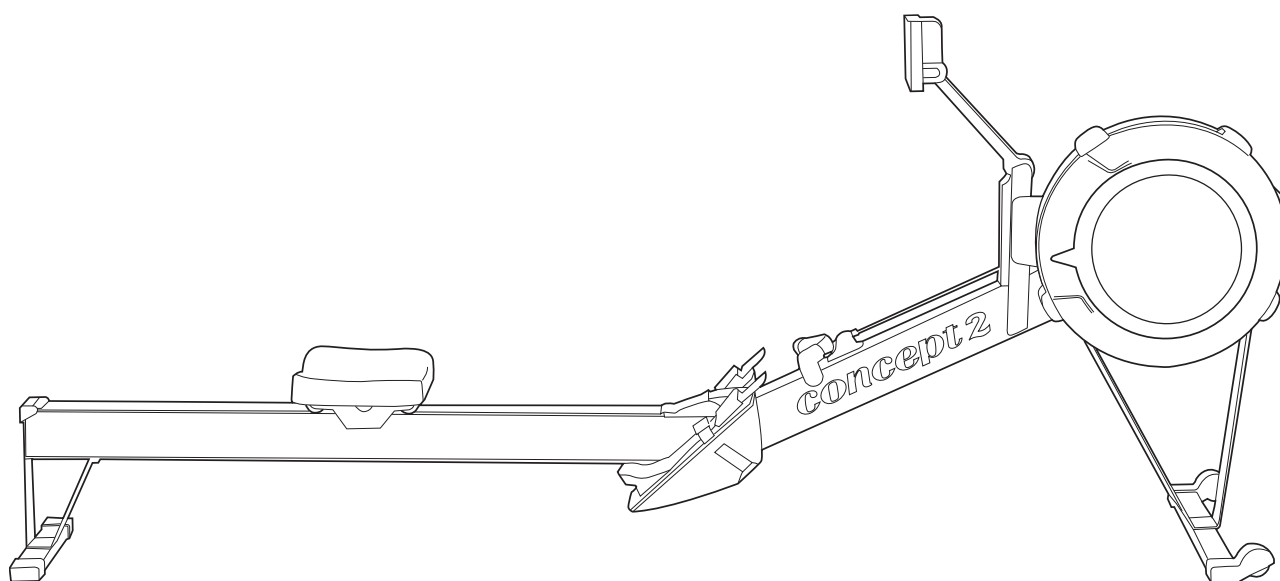
The Drive is the power phase of the stroke and should be strong and vigorous. The Recovery is steady and relaxed. The full stroke should be smooth and rhythmic and there should be no discomfort at any part of the stroke cycle. Discomfort usually indicates that you are doing something wrong (check the Fault Identification section).

In the early stages, ignore the monitor and focus on establishing the correct technique. Concentrate on developing a controlled and fluid movement, with effective use of the legs, body and arms in the Drive. Once you can row comfortably for about ten minutes in a smooth, relaxed, rhythmic manner you are ready to begin a programme of aerobic exercise.

Using the Machine Safely

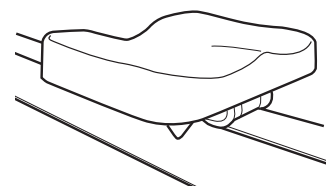
Some routine precautions for your safety and comfort:

- Check the handle, seat and monorail are clean - no dust or sweat.
- Adjust the damper setting and place the handle in the handle hook before securing your feet.
- Adjust the footrests and fasten the straps securely.
- Sit slightly towards the back of the seat.
- Pull straight back with both hands. Do not row with one hand.
- Do not twist the chain or pull from side to side.
- Do not let go of the handle whilst rowing.
- Keep clothing, fingers and children away from seat rollers.
- When you finish your exercise place the handle in the handle hook.
- After you have released your feet place the handle against the fan cage.
- Ensure the machine is properly and routinely maintained.
- T-shirts should be tucked in, shorts tied up and the ties tucked in and shoes should be tied correctly.
- Long hair should be tied back



The Seat

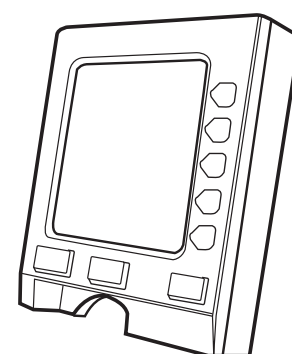
The first stage of setting up the rower for an exercise session is to get into the correct position on the seat. Notice the ergonomic shape of the seat. It is designed to provide maximum comfort when sitting towards its rear. Always make sure that any clothing is tucked in away from the seat rollers. Once seated correctly come forward on the seat, bringing it to the front of the slide so that the rest of the machine can be setup correctly from a comfortable position.



The Performance Monitor (PM)

The Performance Monitor should be raised to an upright position before every exercise session. This will help the user to maintain good posture, sitting in an upright position when looking at the PM. It will also prevent the PM from being damaged if at any point the Handle slips out of the user's hands.

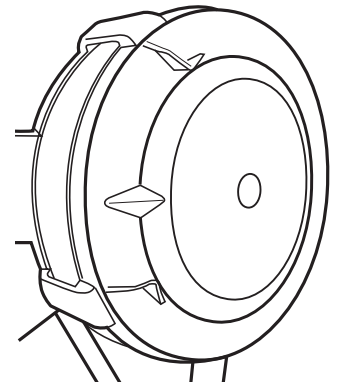
Switch the PM on by pressing the Menu Back Button and check that the batteries are working. The functions on the PM can be used to set up a wide variety of exercise sessions and this is explain in further detail in the Performance Monitor section.



Damper Lever & Damper Setting

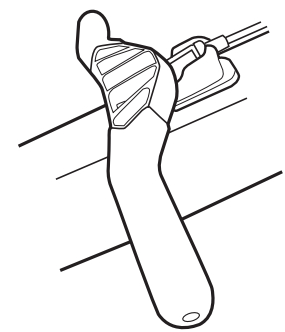
Now the resistance can be set by adjusting the position of the Damper Lever. The Damper Setting can be varied from the lowest setting of 1 with the lever at the bottom to the highest setting of 10 with the lever at the top. For most normal rowing workouts a setting of 3 or 4 will be o.k. Note that the intensity of a rowing workout is determined by how hard the user rows and not by the Damper Setting.

The resistance can also be precisely set by adjusting the damper setting according to the Drag Factor which is displayed via one of the functions on the Performance Monitor.



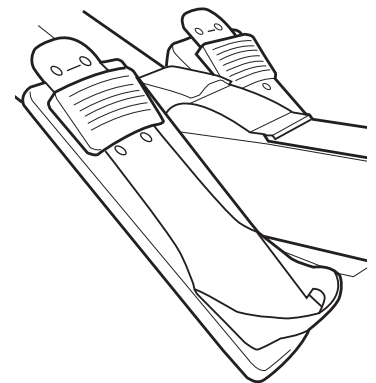
The Handle

The correct position to leave the Handle is left resting against the Fan Cage when the rowing machine is not in use. This will minimise wear on the elastic chord which brings the Handle back towards the Fan during the rowing stroke. Before the user's feet are placed in the Foot Rests the Handle should be placed in the Handle Hook so that it can be picked up easily when the user is ready to row.



Foot Rests

Once seated correctly and the Damper Setting, Performance Monitor and Handle have all been set up for rowing the user's feet can be positioned in the Foot Rests. Notice that the height of the Foot Rests can be adjusted by changing the hole position that they are secured in. The foot straps should be loosened off before the user's feet are placed in the Foot Rests to make sure they can easily slip under them. The Foot Rests should be adjusted so that when the foot straps are tightened over the feet they rest over the crease in the trainers when the foot bends. This position will help the user to row comfortably while maintaining the correct posture.



Detailed Overview

The rowing stroke can be divided into two phases, the Drive and the Recovery. The Drive is the power phase of the stroke where the Handle is drawn away from the Fan. It commences at The Catch where the handle picks up the load from the Flywheel at the front of the stroke and ends at The Finish position with the Handle drawn right back towards the body at the end of the stroke.

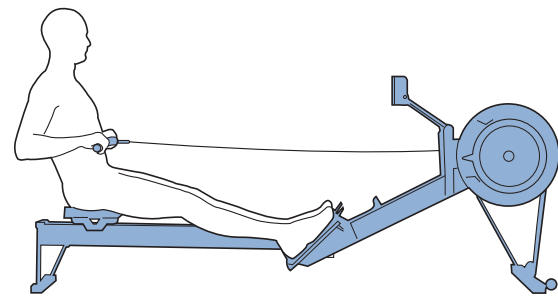
During the Recovery the Handle is allowed to come back towards the Fan while the user gets in position ready for the next stroke. The Recovery begins at The Finish position and ends at The Catch ready for the next Drive phase to begin.

The Drive should be strong and vigorous and the Recovery should be steady and relaxed. Rhythm is the time relationship between the Drive phase and the Recovery phase. The ratio should be about 2:1 with the Recovery taking about twice as long as the Drive.

Ironically, the best place to start is the finish.

Start Position (The Finish)

Before starting to row the user should get into The Finish position. To do this, extend the legs to a flat position and rock the body back slightly to about 11 o'clock on a clock face. Try to keep the back straight in a strong position. The Handle should be drawn to the body and held lightly in both hands. The hands should be positioned so that the little fingers are over either edge of the Handle. The chain should be roughly parallel with the ground and the top row of knuckles on the hands, the wrists and the elbows should all be held flat in a straight line. The elbows should be drawn right past the body and should not be sticking out to either side. The shoulders and arms should feel loose and relaxed.



This is the Finish position, the user is now ready to start rowing.

Arms Only Rowing

The first stage is Arms Only rowing. It is important to keep the legs and body still during this stage and concentrate on moving the arms alone. Arms Only rowing consists of extending the arms until they are straight and then picking up the load in the chain and smoothly pulling the Handle back towards the body. Don't move the body forward to the Handle.

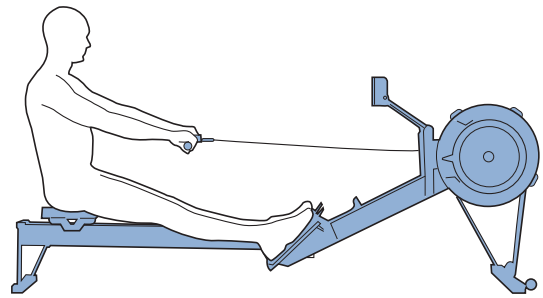
To use an indoor rowing style, keep the chain parallel with the floor and smoothly move the Handle out until the arms are straight and then pull it back towards the body and The Finish position. Keep repeating the cycle trying to achieve a smooth comfortable movement.

Body Rock

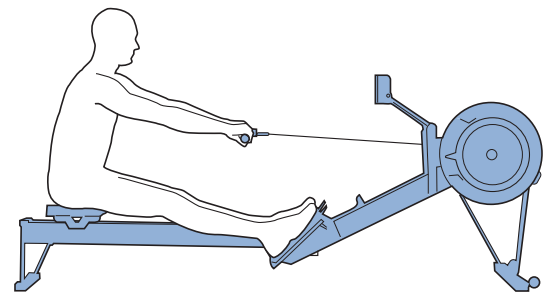
When Arms Only rowing has been mastered and can be carried out smoothly and comfortably it is time to move to the next stage which is Body Swing or Body Rock.

To perform Body Rock rowing, the body rocks over slightly from the hips after the arms are fully extended. The amount of movement is from about 11 o'clock to about 1 o'clock on a clock face. The legs remain flat. There should be a gentle stretching sensation in the ham strings.

It is important to keep sitting up and keep the back straight and in a strong position during this phase with all of the rock coming from the hips rather than the back bending. Also try and extend the arms fully before allowing the body to swing over so that it feels like the straightened arms are pulling the back forwards from the shoulders. Start the Drive by levering the body back against the resistance of the chain with the arms fully extended. Don't begin the Drive by pulling with the arms.



The body is a firm platform to which the handle is drawn.



1/4 Slide

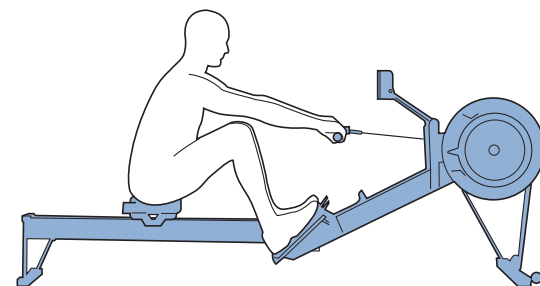
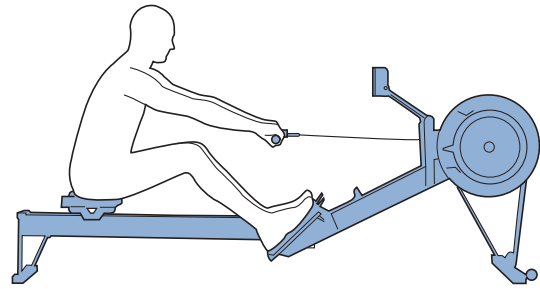
When Body Rock rowing can be carried out correctly it is time to move onto the next stage which is 1/4 Slide rowing. To extend the stroke to 1/4 Slide wait until the body swings over (to about 1 o'clock) and then allow the legs to bend slightly at the knee so that the Seat slides forwards a few inches to about a quarter of the way along the Slide. Note that only a slight bend in the knee is required to achieve 1/4 Slide.

Focus on keeping the arms extending first before the body swings over and keeping the legs flat until the body has swung over. Start the Drive by pushing the legs down and levering the body back. Keep the arms straight until the Handle passes over the knees. Again the motion should feel smooth and relaxed. Keep repeating the stroke until it feels comfortable to carry it out correctly.

1/2 Slide

When 1/4 Slide has been mastered it is time to move on to 1/2 Slide. To extend the stroke to 1/2 Slide simply allow the knees to bend further on the Recovery until the legs make an angle of about 90 degrees. The Seat should travel about 1/2 way along the Slide. Remember to move the hands before the body and to move the body before the legs bend.

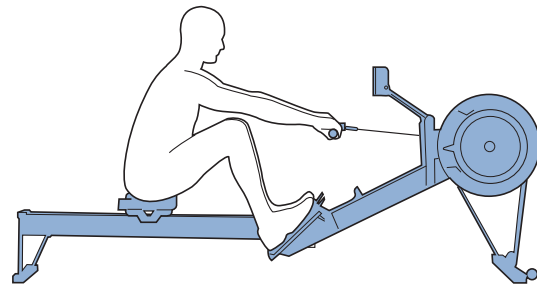
Make sure that the knees are only at an angle of 90 degrees and that the shins are some way from vertical. Still focus on the order of the stroke from The Finish. That is hands then body then Slide. Start the Drive by pushing the legs down and levering the body back. Keep the arms straight until the Handle passes over the knees. It should now be possible to begin to feel a ratio between the faster Drive phase and the longer, slower and more relaxed Recovery phase. Again the motion should feel smooth and relaxed. Keep repeating the stroke until it can be comfortably carried out correctly.



3/4 Slide

Once 1/2 Slide has been mastered it is time to move on to 3/4 Slide. 3/4 Slide is very similar to 1/2 Slide. To move from 1/2 Slide to 3/4 Slide simply allow the knees to bend a little further so that the Seat travels a few more inches along the Slide. The shins should not yet reach a vertical position.

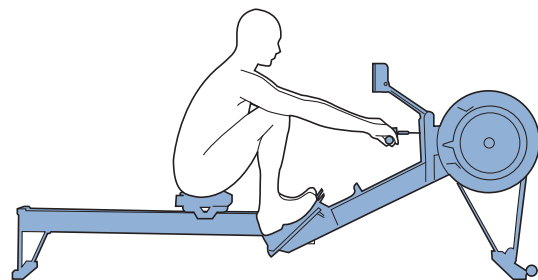
Focus on the order of the stroke and making sure that the shins do not quite reach a vertical position. Keep an upright posture, maintaining a strong back and bending from the hips. Start the Drive by pushing the legs down and levering the body back. Keep the arms straight until the Handle passes over the knees. It should now feel like there is a definite ratio between the faster Drive phase and the longer, slower and more relaxed Recovery phase.



Full Slide

Once 3/4 Slide has been mastered and it feels comfortable the stroke can be extended to Full Slide. To reach Full Slide simply allow the knees to bend a little further so that the Seat comes forward a few more inches until the shins reach a vertical position. Make sure that the shins do not go past a vertical position and keep an upright sitting posture at The Beginning. The back should be in a strong braced position at The Catch.

Focus on timing the Recovery correctly and developing a good ratio between the Drive phase and the slow, relaxed Recovery phase. Control the Recovery so that the Seat slows down as it comes to the front of the Slide. Maintain a good posture keeping the back in a strong upright position at The Catch. Once again start the Drive by pushing the legs down and levering the body back and keep the arms straight until the Handle passes over the knees. Stay relaxed, fluid and smooth.



The Finish

- The legs are flat.
- The handle is drawn to the body and held lightly.
- The body is inclined slightly back.
- The elbows are drawn past the body. The forearms are horizontal and the wrists flat.
- The shoulders are down and relaxed.

Arms extend

- The arms are relaxed and extended fully.

The Body Rocks forwards

- The body rocks forwards from the hips.

The Slide

- AFTER the arms have fully extended and the body rocked forward, slide forward maintaining arm and body position. Legs should be parallel through the recovery to prevent knees touching or legs splaying apart.

THE Drive

- Full Slide – The Catch
- Shins vertical with body pressed up to the legs. The arms are straight and relaxed.
- The position should feel comfortable.

The Start of the Drive

- The legs push down and the body begins to lever back.
- Do not start to use the body too early.

The Drive continued

- The legs continue to push as the body levers back.
- The arms remain straight.

The body stops levering back

- The arms draw the handle past the knees and then strongly to the body, returning to the Finish position. Legs flat. Forearms horizontal.

The Finish

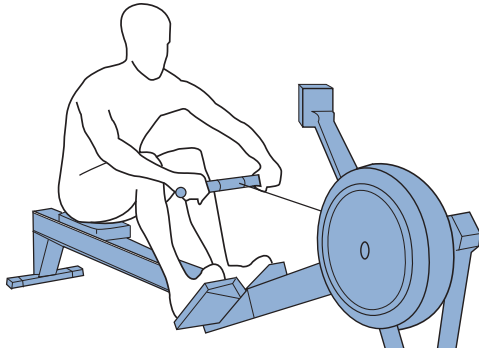
- Lean back slightly, legs flat, handle drawn to the body.
- Forearms horizontal.
- You are ready to take the next stroke.

Faults

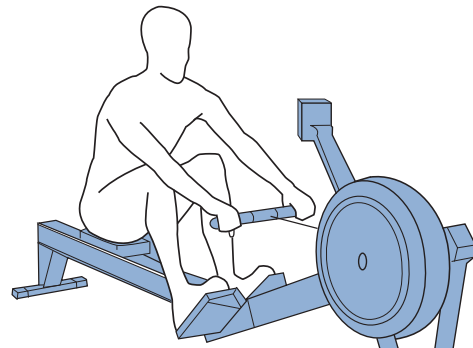
Solutions

1. Rowing with bent arms

When the arm supports a load in one position the muscle remains contracted. Contraction expels blood from the muscles reducing the oxygen supply, increasing lactic acid build-up and hastening fatigue.



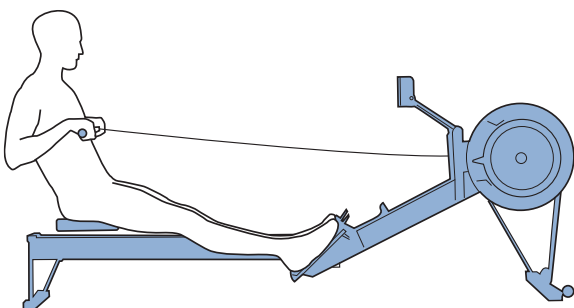
The rower starts the Drive by pulling with the arms rather than pushing with the legs.



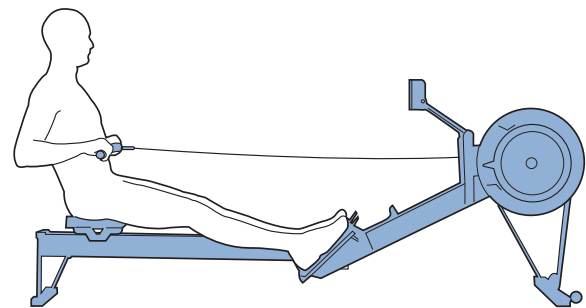
The Drive should start by pushing the legs and bracing the back with the arms fully extended and relaxed. The arms connect the legs and the back onto the handle.

2. Rowing with bent wrists

Work can be carried out more efficiently and the risk of injury reduced when the load passes through the centre of joints.



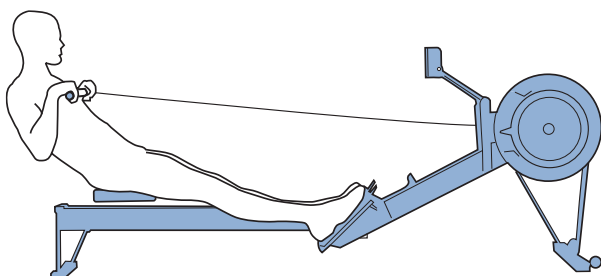
Rowing at various stages of the stroke with bent wrists.



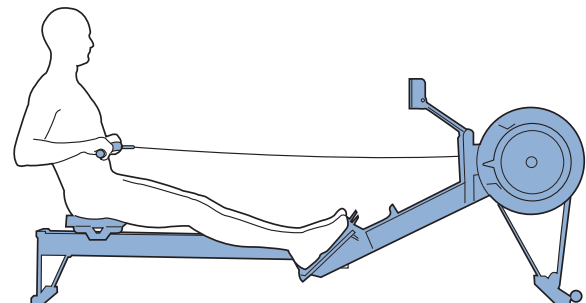
Always row with FLAT wrists. Check the hands at each stage of the Drive.

3. Pulling up too far and leaning back too much

Leaning back too far requires a great deal of energy to swing the body back through the upright position. The energy costs are greater than any gains through rowing a longer stroke.



At the Finish of the stroke, the rower pulls the handle up too high and leans back too far.



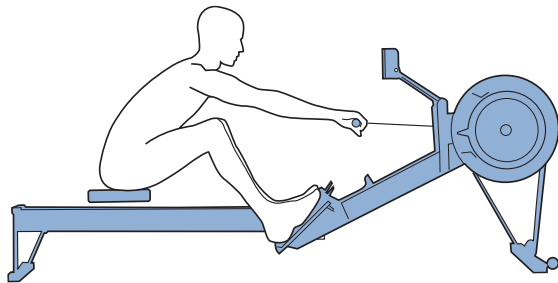
Draw the handle into the body. The wrists should be flat with elbows drawn past the body, forearms horizontal.

Faults

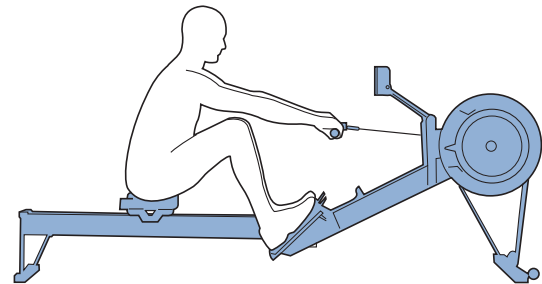
Solutions

4. Slide shooting

The legs are the most powerful muscles in the body and are used to start the acceleration of the flywheel, which represents the greatest load. Any movement of the seat should result in a corresponding movement of the handle or the legs are not being used to the greatest effect.



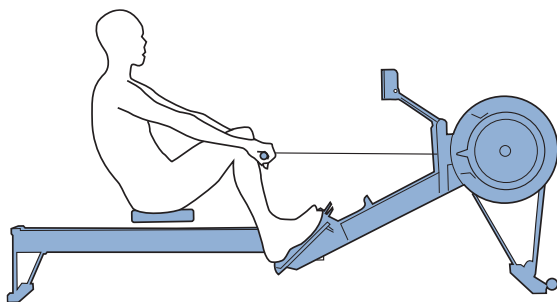
The legs push away too early, the back is not braced and so the power is not transferred onto the handle.



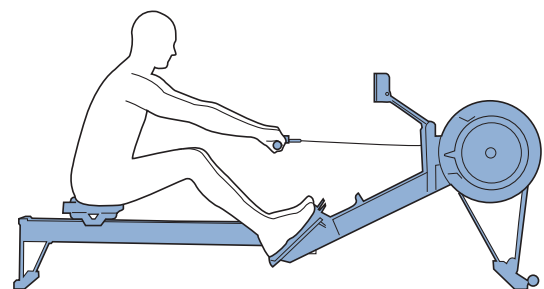
The legs begin the drive and the body leans back with straight arms transferring the leg power onto the handle.

5. Using the back too early

Using the back too early means that the weaker muscles are taking on the greater load and the stronger muscles are used when the load has decreased.



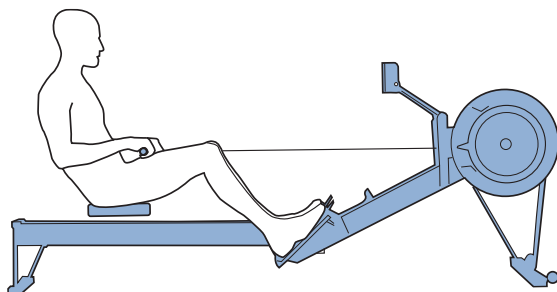
The rower starts the Drive by swinging the body back rather than pushing the legs.



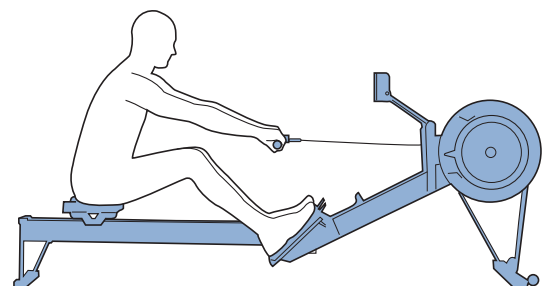
The legs begin the Drive and the body leans back with the arms fully extended and relaxed.

6. Knees up too early

At the beginning of the stroke you need to be balanced and in control to develop maximum power. If the recovery sequence of hands, body then slide is not carried out correctly then this will mean a last minute adjustment, throwing you off balance and out of control.



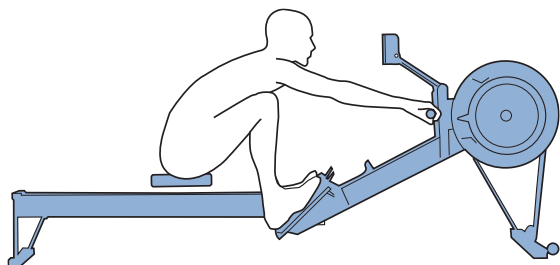
On the Recovery the rower slides forward before the handle has extended past the knees. The hands either hit the knees or they are lifted up to clear the knees.



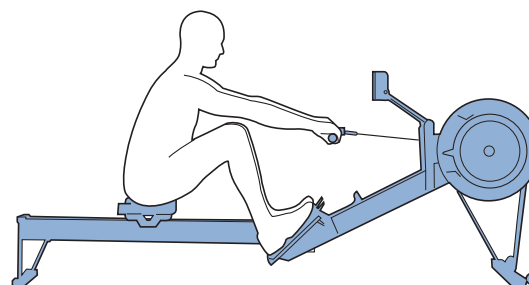
The Recovery sequence - hands, body, then slide. AFTER the arms have fully extended and the body has rocked forward, slide forward, maintaining the arm and body position.

7. Over reaching

Over reaching at the beginning of the stroke places the lower back at maximum flexion. If you then load it up there is a risk of tissue damage in this area.



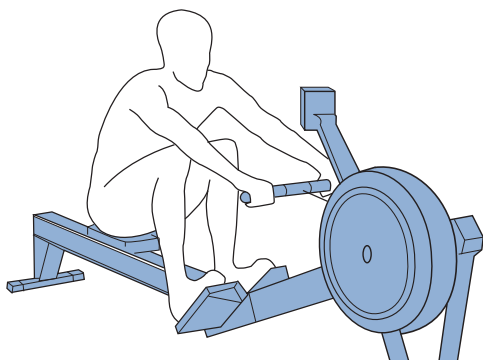
The body stretches too far forward. The shins may be past the vertical. The head and shoulders tend to drop towards the feet. The body is in a weak position for the Drive.



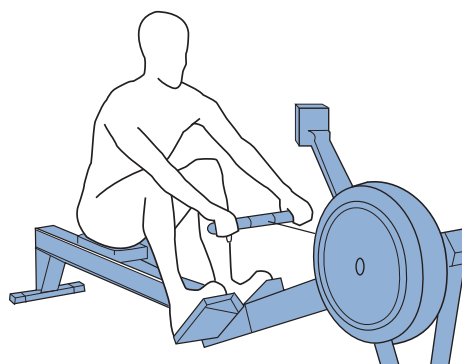
The shins are vertical. The body is pressed up to the legs. The arms are fully extended and relaxed, body tilted slightly forward. This position should feel comfortable.

8. Body too tense. Grip on handle too tight

The only muscles that should be contracted are those directly involved in moving the flywheel. Any muscles in the shoulders and neck that are not directly involved will just drain energy if tensed.



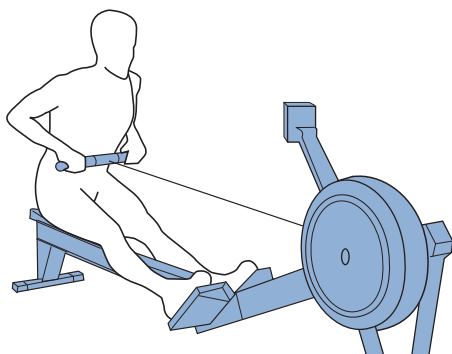
Teeth are clenched, shoulders hunched and the rower is gripping the handle too tightly.



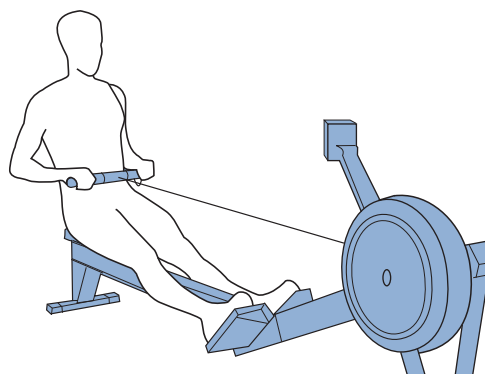
RELAX! Relax the shoulders down, unclench the teeth and relax the jaw. Keep a LIGHT hold on the handle.

9. Pulling the body to the handle

If you pull the body towards the handle there is an energy cost but it will not add anything towards moving the flywheel.

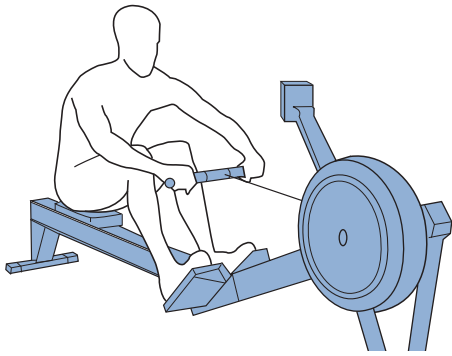


At the Finish, the rower, instead of pulling the handle to the body, pulls himself forward to the handle.

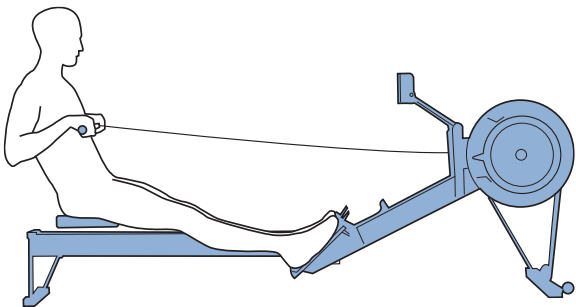


At the Finish the rower leans back slightly, holds the legs down and draws the handle to the body using the upper body as a firm platform.

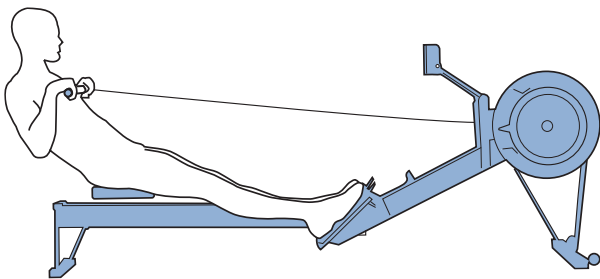
See if you can spot the faults below (solutions P1-3)



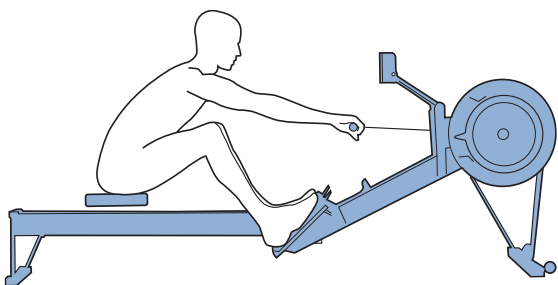
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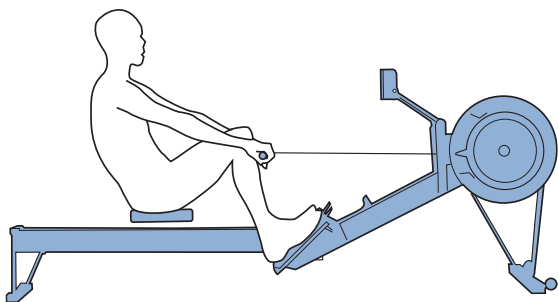
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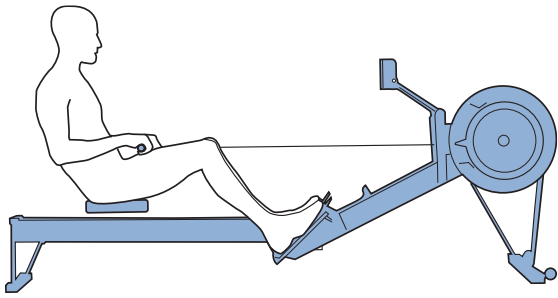
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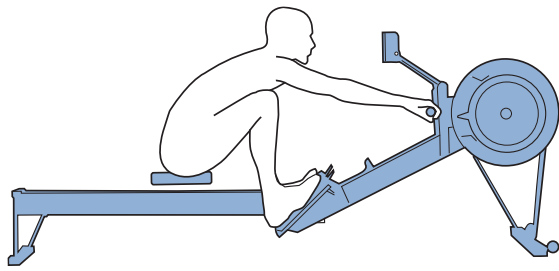
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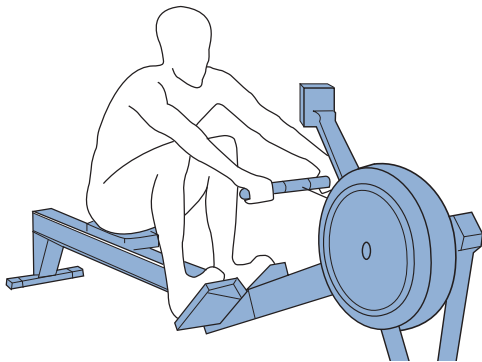
5:



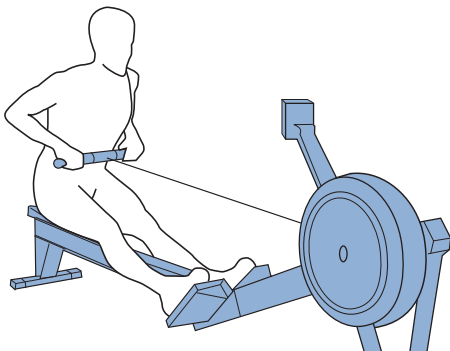
6:



7:

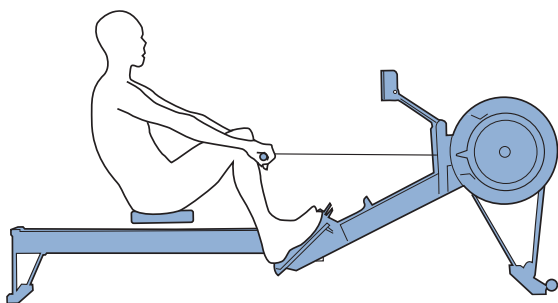
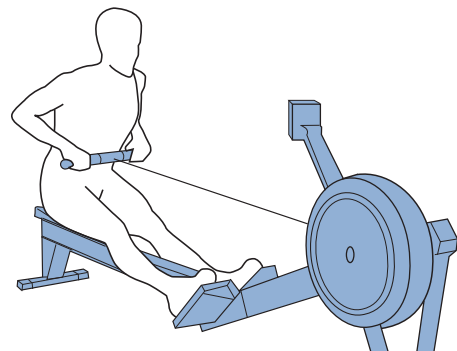
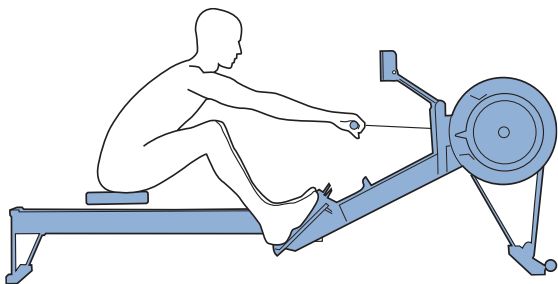
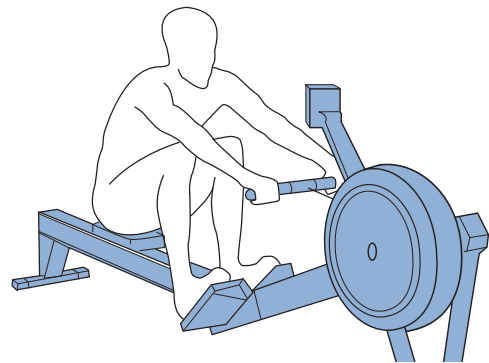
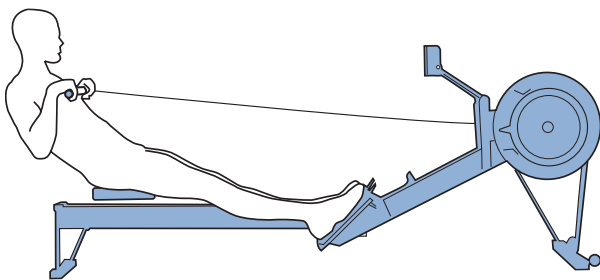
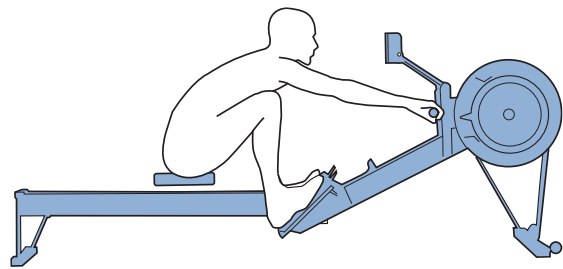
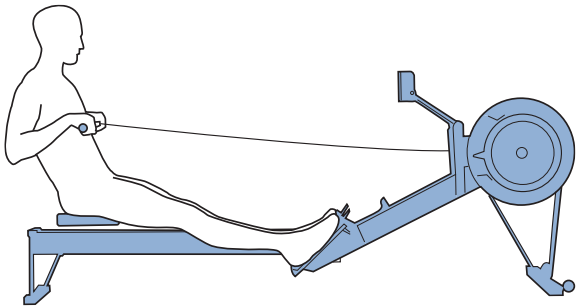
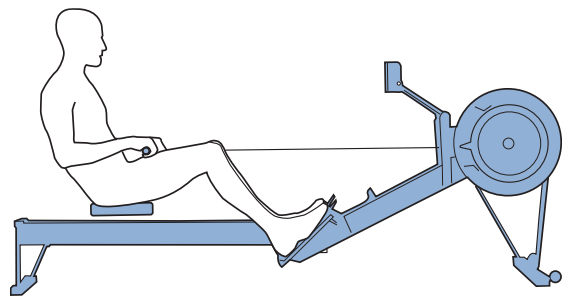
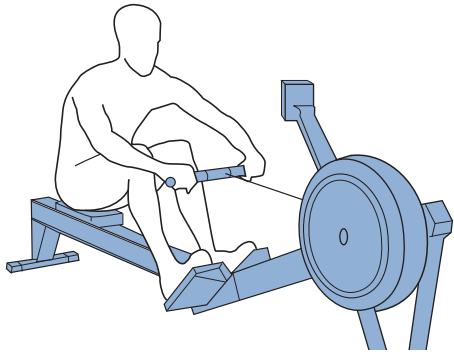


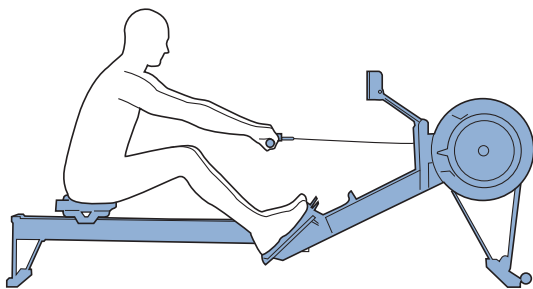
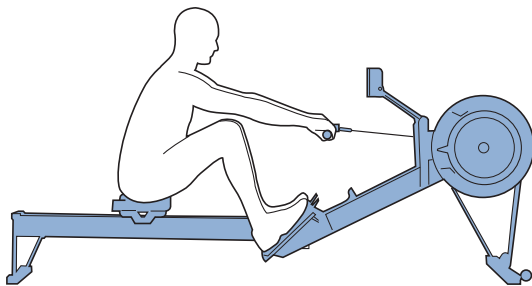
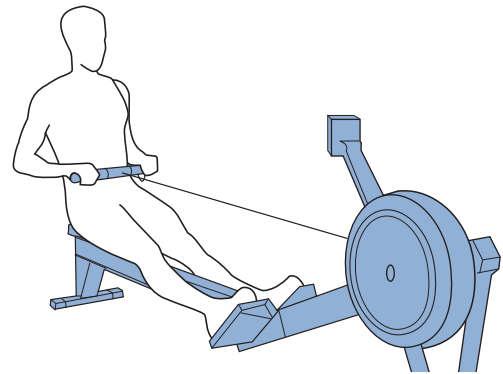
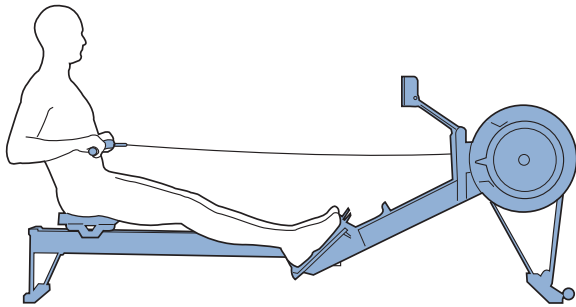
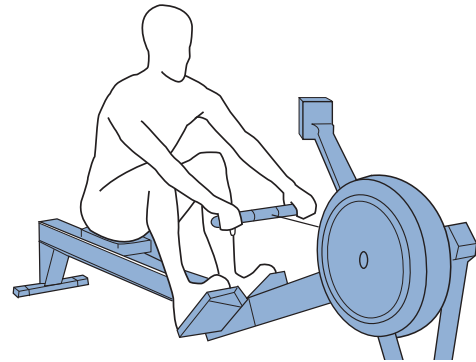
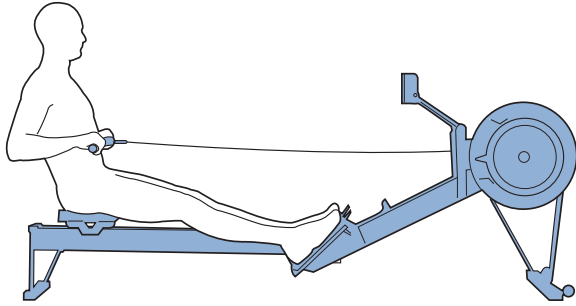
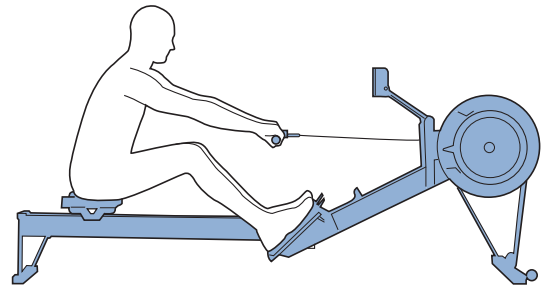
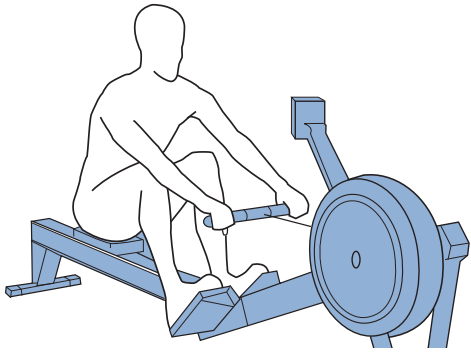
8:



9:

Can you match these faults with the solutions P7

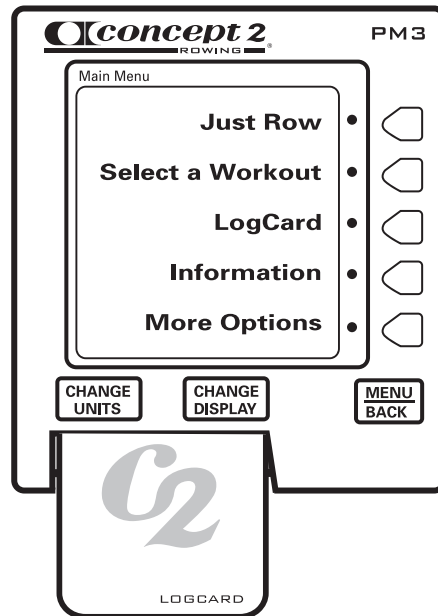




The Performance Monitor

Introduction to the PM:

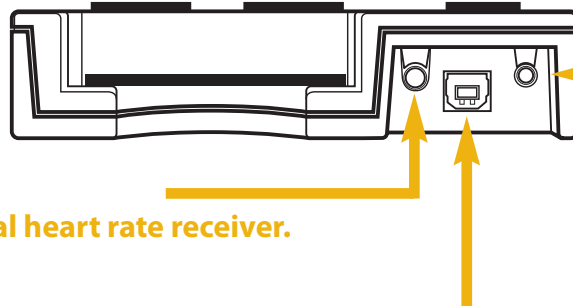
Battery compartment
under back panel



Use these five buttons to make your selections from the menus. When rowing, use these as an alternative way to change display.

With a LogCard, the PM becomes your personal training tool. Insert your LogCard here before setting up a workout and your results will be saved on the LogCard. After your workout, return to the main menu before removing your LogCard to ensure complete data storage. Contact Concept2 for additional LogCards.

The PM is designed to be menu driven and self-explanatory. We encourage you to spend a little time pushing buttons and following the menus. If you press the wrong button, just use the "MENU BACK" button to return to the previous menu. If you dislike pushing buttons, just pull on the handle and the PM will automatically start displaying and storing your results. For additional information select [Information] from the main menu.

Bottom View

Port for the optional heart rate receiver.

USB Port for connecting to a personal computer. See www.concept2.co.uk/monitor/ for current information on PC functions.

Flywheel sensor cable must be connected here for the PM to operate. The Model D/E sensor will also supply power to the PM while you are rowing. The PM can be set to operate with any Model of Indoor Rower

Getting Started

- The PM turns on when you press the "MENU BACK" button, take a stroke, or insert a LogCard.
- The PM turns off automatically after four minutes of inactivity.
- The first time you turn on the PM, you will be prompted to set the language, date and time.

IMPORTANT: Setting the date will allow your results to be stored correctly.

**CHANGE
UNITS**

Operation

Lets you select one of four units for your results: meters (or time), time/500m, watts, and calories. This button is active in rowing displays, result screens, and when setting PaceBoat.

**CHANGE
DISPLAY**

Lets you select one of five rowing displays: All Data > Force Curve > PaceBoat > Bar Chart> Large Print.

**MENU
BACK**

This button is only active from the rowing displays Returns you to the previous menu. From rowing displays, "MENU/BACK" ends the workout and returns you to the main menu.

Workouts

Pre-Set Workouts

There are three kinds of pre-set workouts in the PM: [Standard List], [Custom List] and [ReRow]. If you have a LogCard, you can also access [Favourite] workouts.

From Main Menu: [Select Workout]> [Standard List]> Select from the standard list of workouts that includes: 2,000m, 5,000m, 10,000m, 30 minutes and an interval workout of 500m/1:00. When you select a workout, it will automatically be set up on the rowing screen. The workout begins when you start to row.

From Main Menu: [Select Workout]> [Custom List]> Select from workouts that have previously been set up and stored. The PM comes with a list of custom workouts, but if you have a LogCard you can replace them with your own. With your LogCard inserted select [Set Workout]> [New Workout]>. When you have finished setting up the workout you will be asked if you wish to save the set-up to your Favourites. Later, you can use [More Options]> [Edit Custom List]> to copy one or more workouts from the LogCard to the PM memory.

From Main Menu: [Select Workout]> [ReRow]> Then select the type of workout you wish to ReRow. You will then be able to view a list of previous workouts. Select the workout you wish to ReRow. That workout will automatically be set up on the rowing screen and your previous performance will be used to drive the PaceBoat.

Favourites: (Only available with LogCard inserted) [Select Workout]> [Favourites]> Select a workout from the list of favourites previously programmed using [Set Workout]> [New Workout]> (see below).

Programming Workouts

The PM allows you to program your own specific workouts.

From Main Menu: [Select Workout]> [New Workout]> Then select the type of workout from: [Single Distance], [Single Time], [Intervals: Distance], [Intervals: Time] or [Intervals: Variable]. Enter the information needed to set up the desired workout, using the five side buttons next to the [▶], [+], [-], [◀] and [✓] symbols. When you have finished with the set-up, select [✓] for done. The PM will then be ready to start the workout as soon as you start to row.

When programming [Single Distance] or [Single Time] workouts – The PM allows you to program the duration of the workout, the split length for memory storage (see below) and the optional PaceBoat speed.

When programming [Interval Distance] or [Interval Time] workouts - The PM allows you to program the duration of each interval, the rest period in between each interval and the optional PaceBoat speed.

NOTE: For any interval workout the first interval starts when you begin to row. All other intervals start as soon as the rest period is finished.

When programming [Intervals: Variable] The PM allows you to set a different distance or time and rest period for each interval up to a total of 30 intervals.

Splits

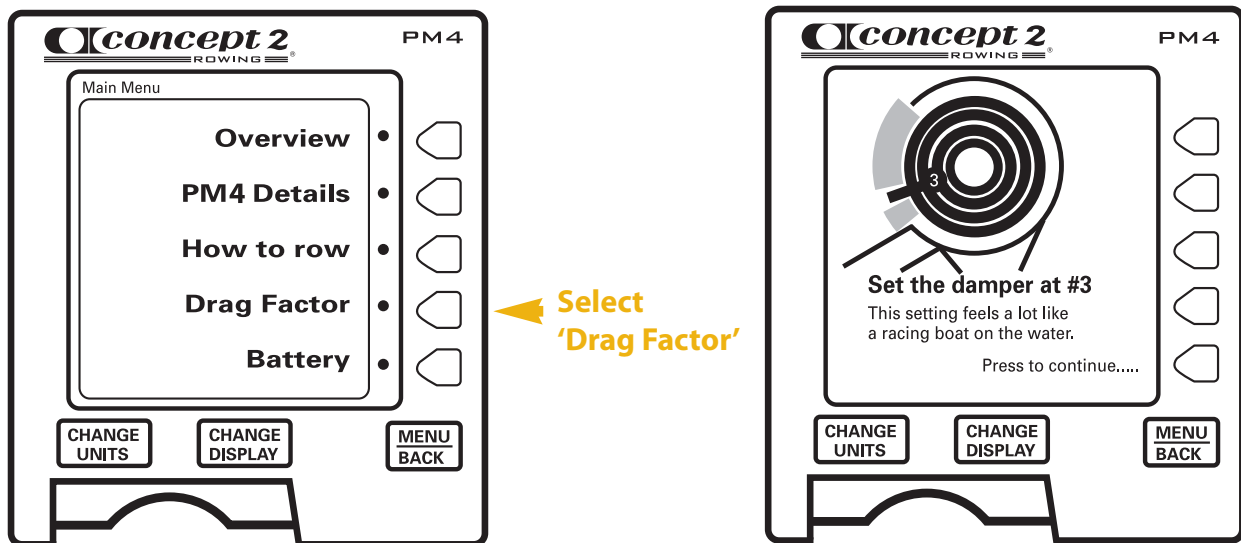
Single piece workouts are split into segments called “splits” for storage and analysis. The PM will default to five segments or splits per piece. You can change this to a desired split time or distance. Note that a maximum of 30 splits are allowed per workout, and the minimum split size is 20 seconds for time or 100 metres for distance. There are no splits for interval workouts. Note that more splits require more storage space on the LogCard and if you choose to store more splits per workout, the LogCard will store fewer workouts.

Drag Factor

The Drag Factor is an accurate measurement of the Air Resistance created by the Fan inside the Fan Cage of the Concept 2 Rower. The Drag Factor can be adjusted by moving the damper lever on the side of the flywheel. The Drag Factor can be viewed from the More Options menu. Select [More Options]> [Display Drag Factor]> then row normally to display the current Drag Factor on the PM.

To increase the drag factor raise the damper lever and to decrease the Drag Factor Lower the Damper Lever. This will alter the feel of the stroke. High numbers feel slow and heavy, lower numbers feel quicker and lighter and more like a racing boat. It is best to use a Drag Factor between 100 and 140. This is usually a damper number between 2 and 5. Use a Drag Factor that feels most comfortable to you and gives you the best result for the workout.

The damper lever setting required to achieve a certain Drag Factor will vary from one machine to another due to elevation, manufacturing tolerances and accumulated dust inside the flywheel cover.



To find out more about Drag Factor use the PM Information function. Select [Information]> [Drag Factor]>

Display Options

The PM has 5 Graphic Display Options which can be selected using the 5 side buttons or by repeated pressing of the "Change Display" button to cycle through the different choices. The options are as follows:

Large Print

Provides basic data in a large, easy-to-read format.

Time - How long you've been rowing or still have to row.

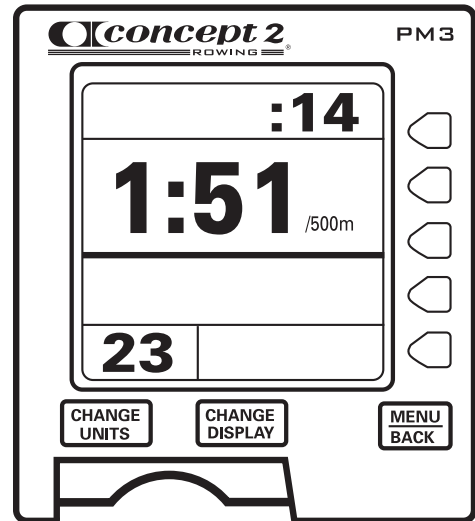
Stroke Rate - Measured in strokes per minute (s/m), updated every stroke.

Stroke Output - How hard you pulled on the last stroke. Displayed in a choice of three units: pace/500m, calories/hour and watts.

Total Output - Cumulative output since you started rowing. Displayed in a choice of four units: average pace, metres, calories and average watts.

Heart Rate - If a heart rate interface is attached to the Rower and you are wearing a chestbelt transmitter, this display will show your heart rate in beats per minute.

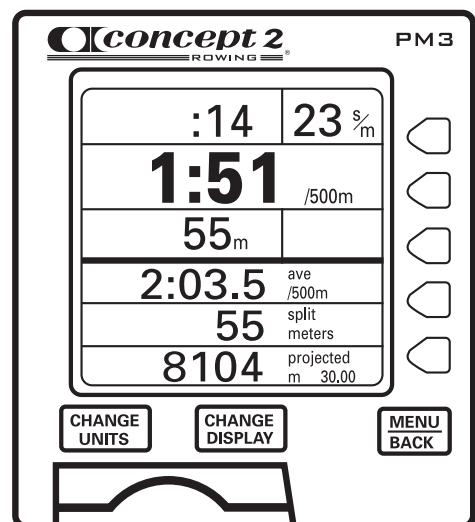
Note: The same basic data which appears in Large Print also appears in a smaller format in the top half of the screen of the other four displays.



All Data

Additional numeric information is displayed. The top line in the bottom half of the screen shows your accumulated score in time, metres or average time/500m depending on the units you have selected. During a Just Row, Single Distance or Single Time workout, the middle line shows your accumulating or average result for the current split. During a work interval the current interval number is displayed.

The bottom line is a projected score for your workout if you continue rowing at your current pace. During a Just Row workout your projected metres for a 30 minute row will be displayed. During a rest interval the total workout metres are displayed, including rest metres.



Force Curve

The Force Curve display option provides a graph of force against time which shows how you apply your force during the drive phase of each stroke.

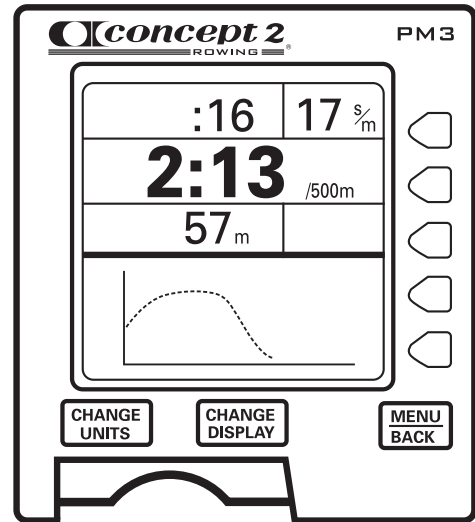
Good technique will be illustrated by a smooth curve which builds to a peak before decaying back to zero at the finish.

Any distortion to the smooth line of the curve can be attributed to a fault in technique.

Some of the most common faults are:

Driving the legs down too hard, causing the force time curve to rise sharply but then start to decrease before climbing again following the normal path. This type of curve is most commonly seen amongst women and can be attributed to an imbalance between a weak upper body compared to much stronger legs.

The second most common fault is a step up or plateau just before the finish. This is more common amongst male rowers and is caused by not using the legs properly at the beginning of the drive and then tugging the finish into the body at the end of the stroke.



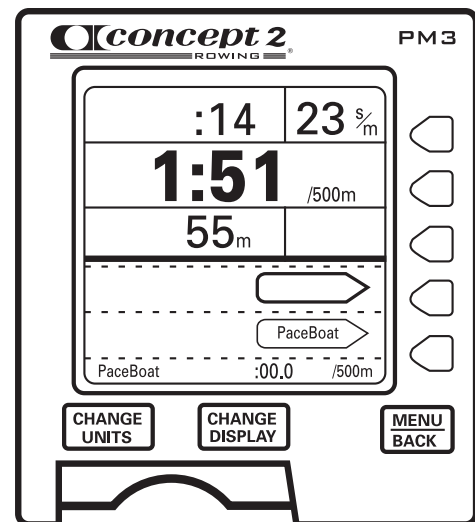
PaceBoat

The PaceBoat display option allows you to row with a virtual competitor.

To set a PaceBoat follow [Set Workout]> [New Workout]> and program the speed of the PaceBoat as part of your workout.

To ReRow against a previous performance follow [Set Workout]> [ReRow]>

If no pace is set the PaceBoat will simply mirror your speed. ReRow uses the selected split results for the speed of the Pace Boat.

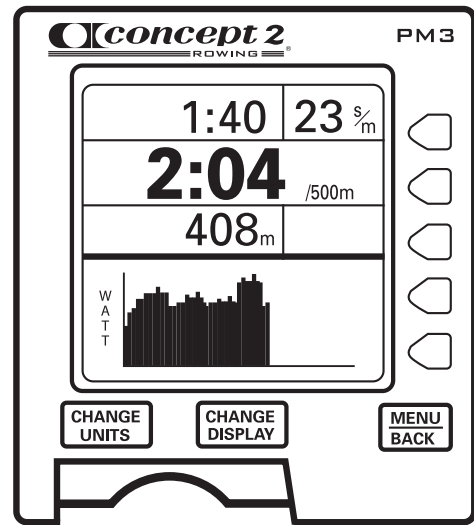


Bar Chart

The Bar Chart display option creates a graphic display of your last 50 strokes.

As you vary the intensity of your workout the range of the display will change to keep your most recent strokes in view.

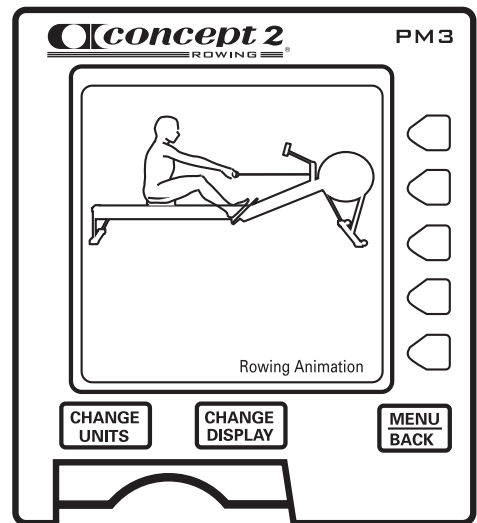
If a heart rate interface is attached to the rower and you are wearing a chestbelt transmitter, your heart rate will automatically be plotted every 10 seconds instead.



The Information Section

The 'Information' section contains details of how to use the Concept 2 rowing machine and includes sections on [Drag Factor](see 1.5.), the use of the PM [PM Details] and [How to Row] which includes instruction on basic rowing technique.

To view the Information section simply select [Information]> from the initial start up Menu.



Batteries and Power Generation

The PM uses two alkaline D-cell or IEC CR20 batteries. It also self-generates if you are using a Model D Indoor Rower or a Model C with retrofit. Depending on the speed of rowing, the PM will generate some or all of the power needed for its operation. This will extend the life of your batteries.

Batteries are needed to maintain date, time, language, Custom List and Memory.

Batteries can be removed for five minutes without loss of this information, if the PM is turned off before the batteries are removed.

When your batteries are low, the following warning will display when you turn on the PM: "Replace batteries soon."

When your batteries are very low, you will be warned "Batteries too low for normal operation". If you keep the batteries in, and if you have the self-generation feature and start rowing fast enough, you will automatically go into Just Row mode. The display will work, but you will not be able to set up workouts, and your workout data will not be saved.

To change batteries, first allow the PM to power down so as not to lose any saved data. Then remove the cover, carefully pry the batteries out and replace within five minutes.

To view the current level of battery charge remaining select [More Options]>[Utilities]>[Battery]>

Battery Life Expectancy

- For Model B or C without retrofit: 300-400 hours.
- For Model D, or C with retrofit, normal use: almost the shelf life of the battery.

Additional Notes

Care of PM

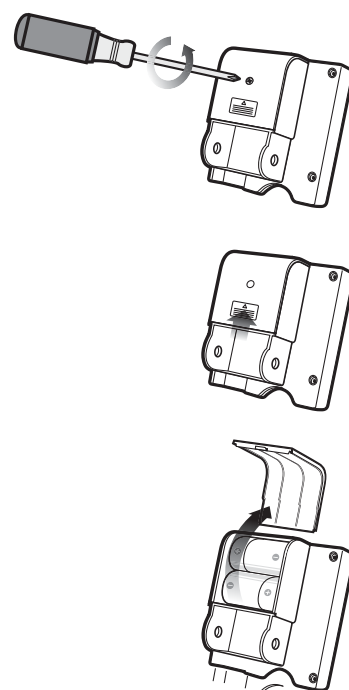
Clean with damp cloth only. Do not apply liquids directly to the PM.

Formulae

The following formulas are used to equate the units of measure:

Watts = 2.80/(sec/meter)³

Cal/hr = Kcal/hr = (watts) x (4) x (0.8604) + 300



The Performance Monitor 4 (PM4) - ADDITIONAL FEATURES

The PM4 monitor comes as standard with the model E, but can also be fitted to the model D. It has all the features of the PM3, with additional functions which include:

- **Heart Rate Monitoring:** The PM4 has a built in wireless compatibility with Suunto heart rate technology, which allows for improved transmissions and eliminates interference from other rower wearing chest belts. The Polar heart rate technology is also compatible; however a Polar receiver does need to be installed.
- **Increased Memory Capacity:** to allow for future expansion and features.
- **Wireless Racing:** has the ability to support both wireless and wired racing. The performance of the wireless racing can vary depending on the environment and distance between machines. For a race between a few rowers it is a very easy to use and convenient race system. For more info please visit:
www.concept2.co.uk/monitor/pm4_racing.php
- **Ethernet:** allows for easier connection in machine to machine racing using no additional PC (up to 8 machines). See
www.concept2.co.uk/monitor/pm4_racing.php

Suunto heart rate chest belt

What it does

The Suunto heart rate monitor is included with every new Concept2 rowing machine with a PM4 monitor. It is a belt which fits around the user's chest and it connects wirelessly to the PM4 monitor, displaying the heart rate of that person during exercise.

To ensure the user only picks up their own heart rate, each monitor can be locked into a chest belt. This means that in a school or gym you can use many heart-rate monitors at the same time and still see the correct heart rate on the monitor.

As the monitor records the workout of the user, it also records the user's heart rate across the same period so it can be analysed later. The heart-rate monitor is also compatible with the Concept2 Log Card, which means that your heart rate will be recorded at intervals across each workout.

How to use it

1. On the inside of the belt, there are 4 lines of numbers. Remember the last 5 digits on the top row as you will need this to identify your belt
2. Attach the belt to the strap by putting the hooks through the holes at either end of the strap.
3. To wear the strap, first moisten the inside of the belt by passing some water across it with your finger.
4. Attach the belt around your chest with the strap. You need to put the sensor bar across the lower part of your ribcage so that the strap cover goes just beneath the chest bone. Adjust the strap so that the belt is firmly attached.
5. Turn the monitor on then press the following buttons. 'MENU/BACK', 'MORE OPTIONS', 'CONNECT SUUNTO HR'
6. There should be a list of available belts, choose the belt which matches the 5 digits on the user's belt, and press 'CONFIRM SELECTION'
7. Heart rate will now be displayed in the bottom-right corner of all the screens, and this will also be recorded onto the Concept2 Log Cards.
8. If you want to change the belt to which the monitor is attached, go back to step 5 and choose the correct chest belt

Advanced use:

For more advanced uses, multiple Suunto heart rate belts can be used with a Suunto PC Pod or Team Pod for recording and evaluating group performances. Take a look at these accessories at www.suunto.com

Quick competitions

You can set up some very quick competitions with the PM4 monitor that are ideal for use in lessons and as a way to getting pupils enthused.

PM4 wireless racing

Description – Up to 8 PM4 monitors can be connected wirelessly to create a quick race. NB they need to be within a 10m radius (having 2 rows of 4 with the flywheels near each other is the most reliable). You can have individual races over a set time or distance or you can use it for a frantic relay, racing teams against each other. The real benefit to these races is that there is no need to have a computer, no extra wires, and they can be set up by pupils or teachers very quickly.

HINT

With up to 4 machines connected, you will see a 2-dimensional view of where your boat is in the race! With more than 4, competitors see a standard Concept2 race screen where their name is displayed.

Set up – Turn on one of the monitors, press 'Games', then 'Racing', the monitor will then search for a wireless race. If it does not find one, you press 'create a race' then choose a distance or custom time. Now, start up the other monitors click 'Games', then 'Racing' and 'join race'. Once all monitors are joined, press 'Start race' on the first monitor.

PM4 wired racing

Description – Up to 8 PM4 monitors can be connected using Ethernet RJ45 cables to race all at the same time. You connect the Ethernet cables into the network ports on the back of the monitors so that all monitors are connected in a daisy chain.

Set up – You will need Ethernet RJ45 cables to join the machines. Now, set up the race on the monitor as in the wireless racing above.

HINT

You can run a wireless race and a wired race simultaneously without interface



Concept2 provide you with rechargeable batteries for the PM4 monitor, however, some issues have come to light when they are used in institutions such as schools and gyms where they may only be used for brief periods of time.

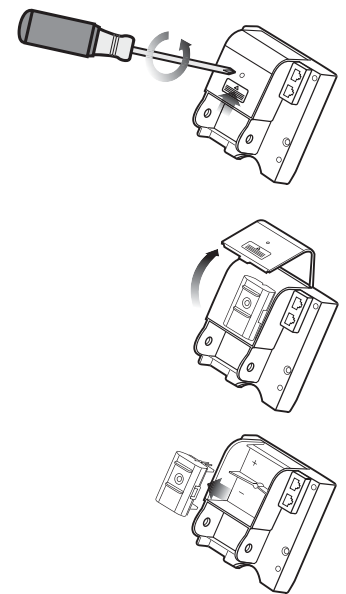
Both the PM3 and PM4 monitors are powered by the athlete while they are rowing. Battery power is only needed to power the monitor while the rower is inactive and the monitor is on. PM4 monitors are supplied in the box with a rechargeable battery pack, which is recharged by rowing; the longer the duration and the higher the power, the more quickly the PM4 charges.

Some usage patterns mean that the rechargeable packs are sometimes not receiving enough charge from the rowers using the machine and are running down too fast.

If this is the case, there are 3 alternatives:

1. Recharge the battery pack by attaching via USB to a plugged in PC
2. Use a USB-mains adapter (ensure the correct USB connector)
And possibly the simplest solution:
3. Use two alkaline D-Cell (LR20) batteries

Note: if you have a PM4, please make sure you are running the latest version of the firmware. There are known issues with the firmware Version 14 which means the battery pack may not recharge via USB. To upgrade, go to <http://www.concept2.co.uk/software/pm4.php>



Setting up the LogCard and Common LogCard Tasks

The LogCard allows you to:

- **Store hundreds of detailed workout results.**
- **Edit your lifetime metres to include workouts not stored on the LogCard.**
- **Save your favourite workout settings.**
- **Race against a previous workout.**
- **Remember your preferred language, display and units.**
- **Add up to five users per card.**

Your LogCard will automatically be formatted the first time you insert it in the PM. You will then be instructed to:

Add New User - Set your user name using up to six letters.

If you would like to carry forward your previous lifetime metres to this LogCard, From Main Menu: select [LogCard]> [LogCard Utilities]> [Edit LogCard]

Each LogCard can serve up to five users, but heavy users will probably want to have their own card. The LogCard will hold hundreds of workout results and you will be warned when it is filled.

To add additional users to your card:

From Main Menu: select [LogCard]> [LogCard Utilities]> [Add User]

To delete a user from your card:

From Main Menu: select [LogCard]> [LogCard Utilities]> [Delete User]

To make a correction to your LogCard or User name:

From Main Menu: select [LogCard]> [LogCard Utilities]> [Edit LogCard]

To delete a workout from the LogCard:

From Main Menu: select [LogCard]> [LogCard Utilities]> [Delete Workout]

To copy a workout from LogCard to PM Custom Workouts:

From Main Menu: select [LogCard]> [LogCard Utilities]> [Copy Workout]

Your total workout results and the split or interval data are stored automatically in the PM Memory and on the LogCard. Also displayed are the average stroke rates and the ending heart rates (if the heart rate option is used). When the PM memory is full, the oldest result will be deleted. The LogCard will hold hundreds of workout results and you will be warned when it is full.

If no LogCard is installed

From Main Menu: select [Memory] to view a chronological list of the last workouts that fit into the memory. Use the cursor buttons to select the workout you wish to view. The memory stores data for each split or interval of your workout.

If a LogCard is installed

From Main Menu: select [LogCard]. Or, from the LogCard User screen, select [LogCard Menu].

You will then select how you wish to view your log information.

A one page summary of your log.

A history of your monthly totals.

A list of your workouts by date. Use the cursor buttons to select the workout you wish to view in detail. The LogCard stores data for each split or interval of your workout.

A list of your workouts by workout type. Use the cursor buttons to select the workout you wish to view in detail.

As with all electronic storage media, we encourage you to make frequent backups of your LogCard data, either by transferring it to a PC or keeping written documentation of key data such as Lifetime Total Metres.

How do I update my lifetime meters on my LogCard?

The PM LogCard keeps track of your lifetime meters for you. By default, this will be the total meters for your user on the LogCard. If you would like to update this value to include actual previous lifetime meters (those not recorded on the LogCard),

From the PM Main Menu: select [LogCard]> [LogCard Utilities]> [Edit User]

Update the lifetime meters displayed by using the buttons next to the [▶], [+], [-], [◀] and [✓] symbols to navigate through the digits and to increase/decrease the values.

Click the [✓] button to save the new value.

Changing Users

To switch between users on a shared LogCard, remove the card, Goodbye will be displayed on the PM, and then reinsert it to log in as another user. Select the desired user from the list.

Is there a way to load the data from the PM and the LogCard into my Concept 2 Online Ranking Logbook or do I need to log each workout individually?

Yes there is. Using the Logcard Utility software with a logcard inserted, press [Transfer Data] then [Upload Data to Online Logbook]

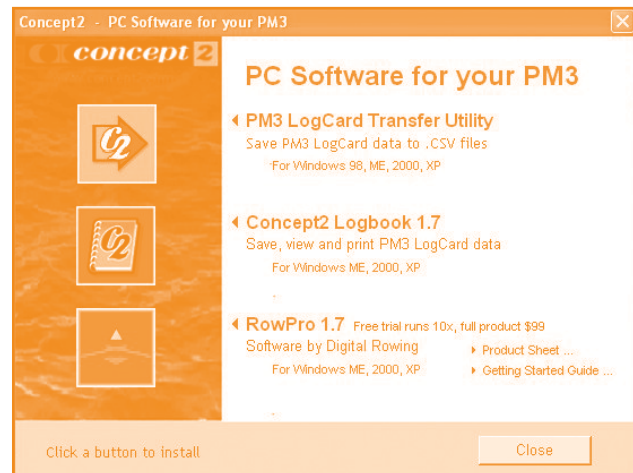
My PC is not near my PM/Indoor Rower. What can I do in order to use the LogCard Utility?

The PM can easily be removed from the rower and taken to the location of your PC. To remove the PM from the rower, unplug the wire coming from the flywheel pick-up, and remove the bolt that attaches the PM to the monitor arm.

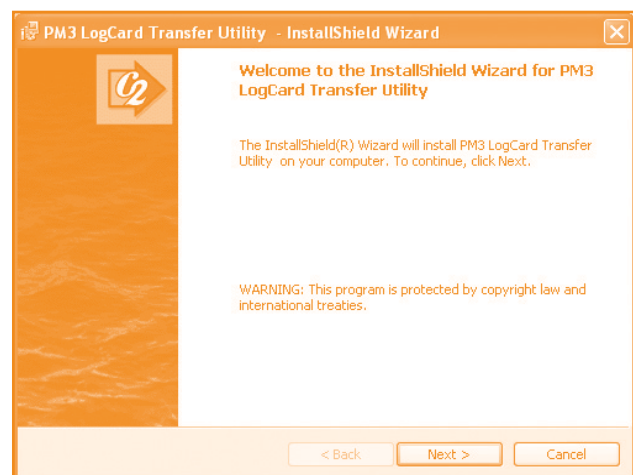
Note: If you do this regularly, you may want to obtain a wing nut from your local hardware store or you can call Concept 2 and order PN 1284.

Installing the PM LogCard Transfer Utility from the CD

Insert the CD titled "PC software for your PM" that came with your PM or Model D/E. This will automatically open the Concept 2: PC Software Suite (if this does not open automatically go to the start menu, select my computer and then select the CD drive). Once opened the Concept 2: PC Software Suite should look like this:



Click on the C2 button next to the PM LogCard Transfer Utility text to install. After a short delay the following dialogue box will be displayed.

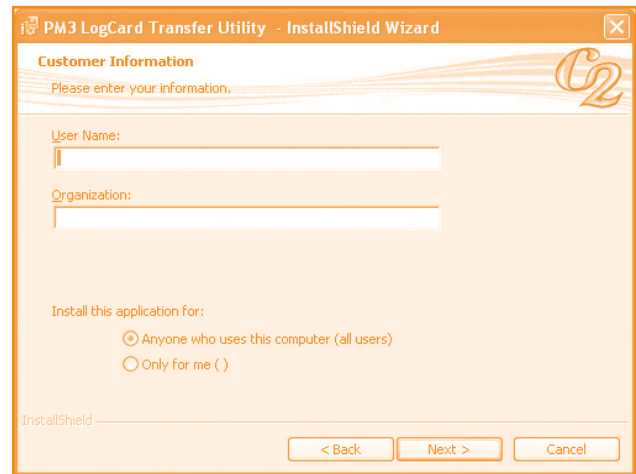


Click **Next >**

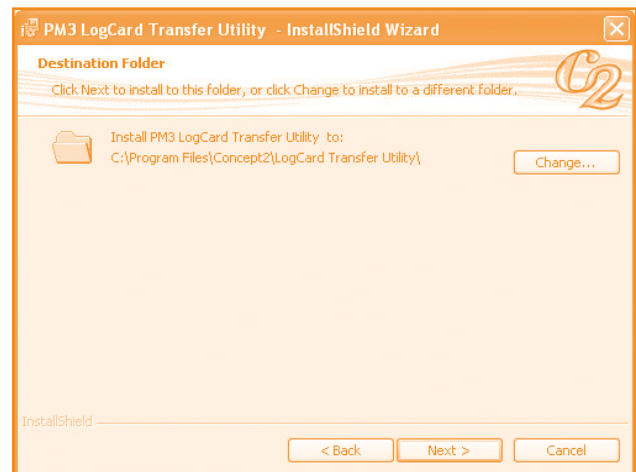
This will take you to the Licence Agreement. Please read this and then check I accept and then click **Next >** to proceed.



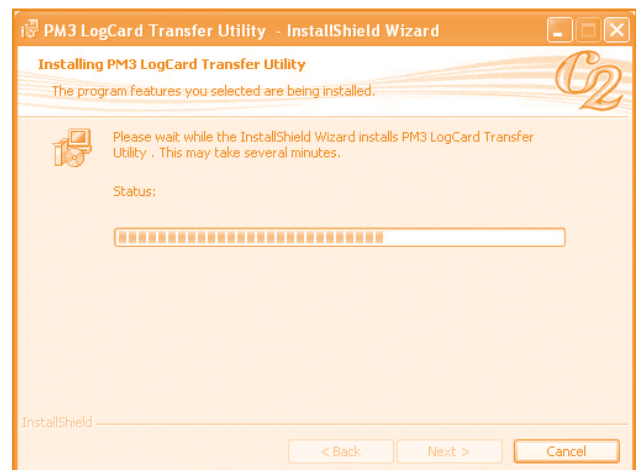
Then the following screen will be displayed. Complete your username and organisation details then click **Next >**.



The Software will load by default into the Program Files folder on the C: Drive. It will create a folder called Concept 2 if one does not already exist. If you would like to change and select the folder where you would like it. When you have chosen the desired program location click **Next >**.

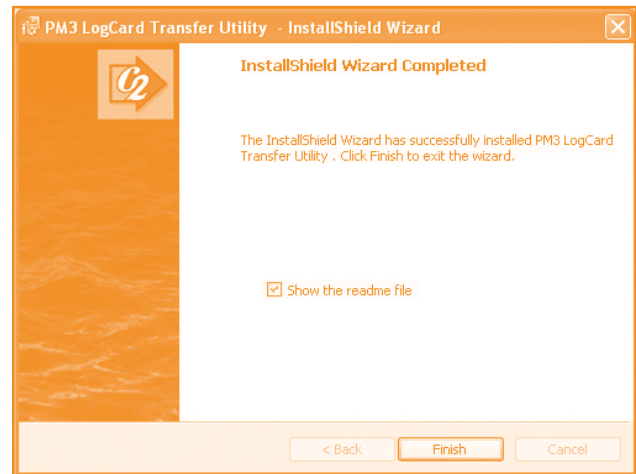


You will then be shown a screen showing where the programme will be saved. Select Install and the programme will be installed.



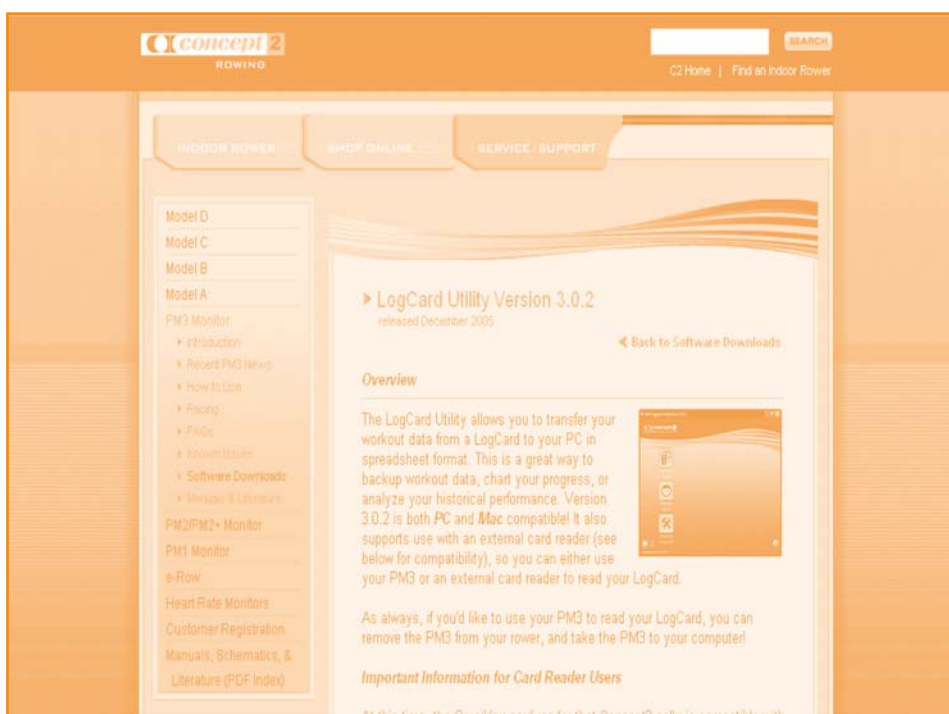
Once the installation is complete the following screen will be displayed.

If you want to view the readme file check the appropriate box. This is a text (.txt) file which can be viewed using Notepad or Wordpad. Click on Finish and the LogCard Transfer Utility installation will be complete.



Downloading the LogCard Transfer Utility from the Internet

The LogCard Transfer Utility can also be downloaded from the internet. This method will install the latest version of the software. It also makes it possible for users who have not got the Concept 2 PC Software for your PC CD to install the software. To download from the internet open the Internet Explorer. Then type the following address: **www.concept2.co.uk/software**



To install immediately click Run. When the download is complete click Run to start the installation. This will open the Installation Wizard. Follow the instructions to complete the installation.

To install at a later time click Save and select the download location for the installation file. Once the file has been downloaded, the software can be installed at any time by navigating to the download location and double clicking on the installation file. As above this will open the Installation Wizard. Follow the instructions to complete the installation.

Downloading Data from the LogCard using the PM/PM4 LogCard Transfer Utility

Using the USB cable that comes with the PM/PM4, connect your computer to the monitor.



Port for the optional heart rate receiver.

USB Port for connecting to a personal computer.

Flywheel sensor cable must be connected here for the PM to operate. The Model D/E sensor will also supply power to the PM while you are rowing. The PM can be set to operate with either the Model D/E or Model C.

After downloading and installing the PM/PM4 LogCard Utility, the first page which appears should be similar to the one opposite.

Within this page you can transfer data, change users and change information on the LogCard.



Transfer LogCard data to Spreadsheet

To transfer data from the LogCard to a spreadsheet, click upon 'Transfer LogCard data to spreadsheet' in the Transfer Data option within the initial screen. A screen similar to the one opposite should appear.

After selecting an appropriate file name then click OK. There is the option of clicking upon automatically open file in Excel, which means that the file will open up in Excel.

The LogCard will then be read and the data will be saved in a format which can be opened up in a spreadsheet. You will then be returned to the initial launch page.



Transfer LogCard data from backup file.

To transfer data from the LogCard from a backup file, click upon 'Transfer LogCard data from backup file' in the Transfer Data option with in the initial screen. A screen similar to the one opposite should appear.

Change the Backup file and the file where the data will be interpreted to, to a file which is appropriate. There is the option of clicking upon automatically open file in Excel, which means that the file will open up in Excel. Then click OK

Then the files will be created and you are returned to the launch page.



MAINTAIN USER

Erase Workouts

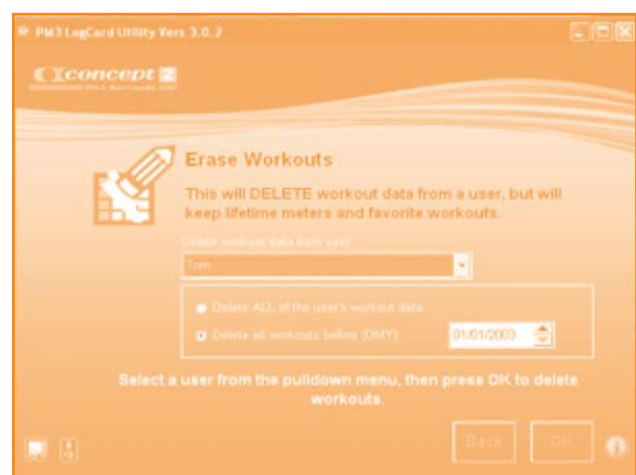
To erase workouts found on the LogCard click on the 'erase workout' box within the maintain users section. This should then lead onto a page similar to the one opposite.



At this page select the appropriate user who appears on the drop down list. They will be the users who currently use the card. Also select whether you want all of the user's workout data deleted or some before a specific date which can be chosen, by clicking on the appropriate box. The click on OK to continue.

The LogCard will then be read, and a final confirmation box will appear. Click either YES to continue or NO to stop the process.

Then the LogCard will delete the specific workout data and returns you to the initial opening page.



Move a User

Move user and data to a different LogCard

To move user and data to a different LogCard found on the LogCard click on the 'move user and data to a different LogCard' box within the maintain users section. This should then lead onto a page similar to the one shown opposite.

From this page select the appropriate user from the pull down menu and then click on OK to continue.

You must have a formatted blank LogCard for this process to happen otherwise all of your data will be lost.

The LogCard is then read, and a final confirmation box will appear. Click either YES to continue or NO to stop the process. At this stage you must have a blank LogCard ready.

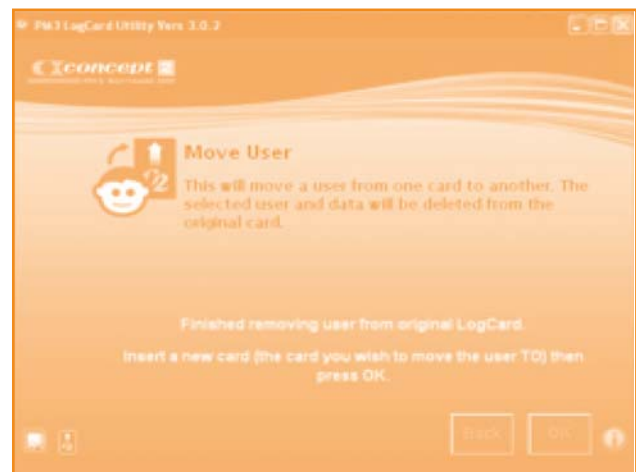
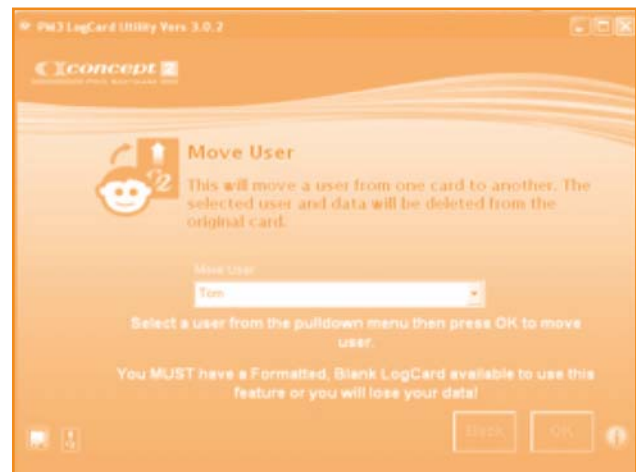
The LogCard is then read and the data is removed. A screen similar to the following one should then appear.

Insert the new blank LogCard and then press OK.

The LogCard is then read and written and then you are returned to the initial page on the PM LogCard Utility.

Delete a User

To delete a user found on the LogCard please delete it manually on the PM.



MAINTAIN LOGCARD

Save LogCard data to file

To save LogCard data to file click on the 'Save LogCard data to file' box within the maintain LogCard section. This should then lead onto a page similar to the one shown opposite



You then have the option of changing where the file is saved. You can either accept the default or choose a new file by clicking on Browse and then finding an appropriate file you wish to save it to. Then click OK.

The LogCard is then read and the data saved. You are then returned to the initial menu page.



Restore LogCard data from file

To restore LogCard data from file click on the 'Restore LogCard data from file' box within the maintain LogCard section. This should then lead onto a page similar to the one shown opposite.

You then have the option of changing where the file is uploaded from. You can either accept the default on or choose a new file by clicking on Browse and then find an appropriate file you wish to upload. Then click OK.

The LogCard will then be overwritten. Click YES if you are sure or click NO if you do not want this to happen.

The LogCard is then read and the data saved. You are then returned to the initial menu page.

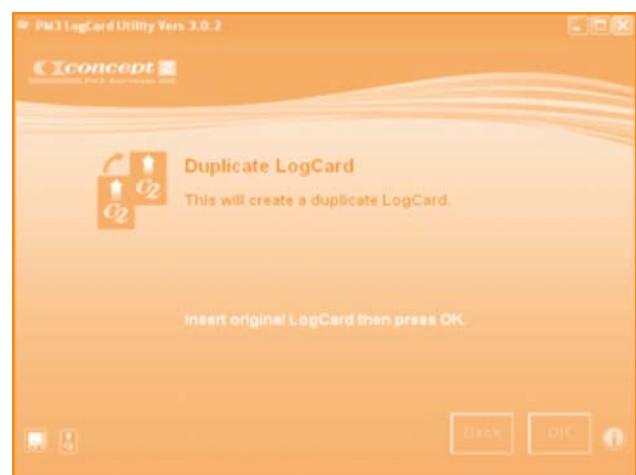
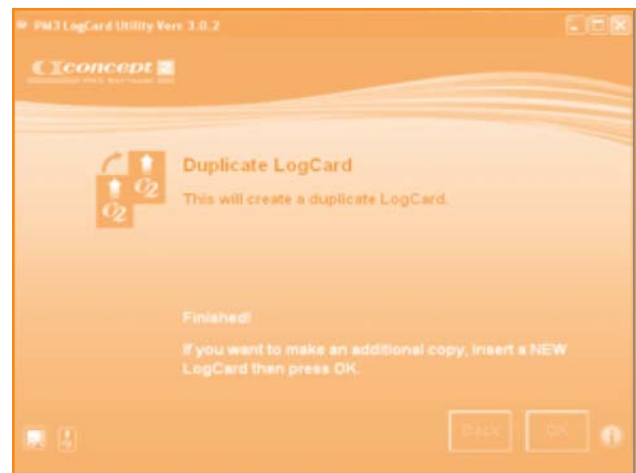
Duplicate entire LogCard

To duplicate entire LogCard data from file click on the 'Duplicate entire LogCard' box within the maintain LogCard section. This should then lead onto a page similar to the one shown opposite.

Insert the original LogCard which you want to be duplicated and click OK.

The LogCard is then read and a screen similar to the one opposite appears.

Remove the original LogCard and insert a new LogCard. Then click OK to continue



The LogCard is then duplicated. You do have the option to make additional copies of the LogCard by inserting a new LogCard and clicking OK. To finish please click Back, this will return you to the initial main menu.



How to erase a LogCard and start over

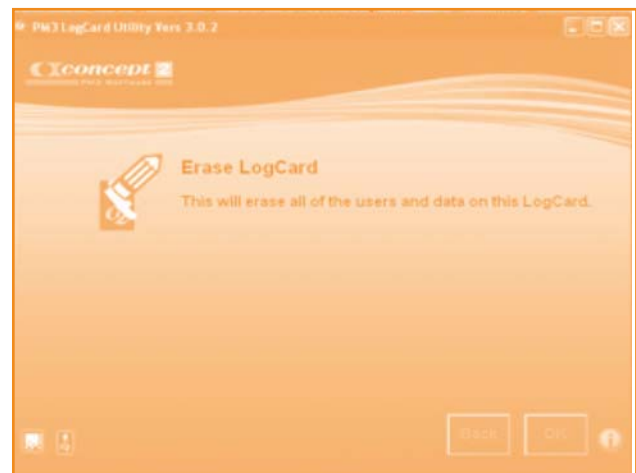
Erase all LogCard data and users

To erase all LogCard data and users click on the 'Erase all LogCard data and users' box within the maintain LogCard section. This should then lead onto a page similar to the one shown below.

Click OK to continue.

A confirmation box then appears. Click YES to continue or NO to cancel the process.

The date and user are then erased and you return to the initial menu.



What to do if the PM Monitor will not Communicate with the PC

1. Ensure that you have saved any workouts to your LogCard.
2. Disconnect the USB Cable.
3. Ensure that the USB connector in the PM is solidly attached. (Sometimes the USB jack becomes physically disconnected from the circuit board due to excessive cable insertion force. If it is loose, please contact Concept 2 to discuss replacement/exchange options.)
4. Remove one of the batteries in the PM.
5. Press a button on the keypad and release.
6. Leave the battery out for one hour or more.
7. Reinstall the batteries and set the language, date, and time.
8. Try attaching the PM to the PC again. If the PC still cannot talk to the PM, leave the batteries out overnight and try the preceding steps again using a different USB cable.

Creating a Graph of Split Time Vs Distance Rowed from the LogCard Data

Download the information from the LogCard, as explained in the section Downloading data from your LogCard.

Excel will have opened a spread sheet with your data open. This will look something like this.

Log Data Entry		Total Workout Results			Split or Work Interval Results			Results Calculated by Formulae				
Name	Date	Time of Day	Metres	SPM	Heart Rate Time	Metres	SPM	Heart Rate/500m	Cals	Watt	Time	Metres
Alex	4/10/05	10:24:0000m	2042.6	6000	20	0	00:57.1	200	20	137	01:54.2	1196
Alex	4/10/05	10:24:0000m					00:57.4	600	21	151	01:54.8	1096
Alex	4/10/05	10:24:0000m					00:57.2	700	22	165	01:54.4	1104
Alex	4/10/05	10:24:0000m					00:57.3	800	21	160	01:54.8	1100
Alex	4/10/05	10:24:0000m					00:56.4	1200	21	164	01:52.8	1130
Alex	4/10/05	10:24:0000m					00:57.1	1500	22	166	01:54.2	1100
Alex	4/10/05	10:24:0000m					00:57.5	1750	21	165	01:55.0	1092
Alex	4/10/05	10:24:0000m					00:57.4	2000	22	169	01:54.8	1096
Alex	4/10/05	10:24:0000m					00:56.6	2250	22	170	01:53.2	1130
Alex	4/10/05	10:24:0000m					00:57.1	2500	22	170	01:54.2	1108
Alex	4/10/05	10:24:0000m					00:57.0	2750	21	170	01:54.0	1113
Alex	4/10/05	10:24:0000m					00:56.9	3000	22	168	01:53.8	1117
Alex	4/10/05	10:24:0000m					00:57.1	3250	23	170	01:54.2	1108
Alex	4/10/05	10:24:0000m					00:56.2	3500	21	170	01:52.4	1149
Alex	4/10/05	10:24:0000m					00:56.4	3750	22	171	01:52.6	1143
Alex	4/10/05	10:24:0000m					00:56.2	4000	21	171	01:53.0	1134
Alex	4/10/05	10:24:0000m					00:56.3	4250	22	171	01:52.6	1143
Alex	4/10/05	10:24:0000m					00:56.6	4500	22	171	01:53.0	1134
Alex	4/10/05	10:24:0000m					00:56.8	4750	22	171	01:53.8	1121
Alex	4/10/05	10:24:0000m					00:57.0	5000	22	171	01:54.0	1113
Alex	4/10/05	10:24:0000m					00:56.4	5250	22	171	01:52.8	1136
Alex	4/10/05	10:24:0000m					00:56.9	5500	22	171	01:53.8	1117

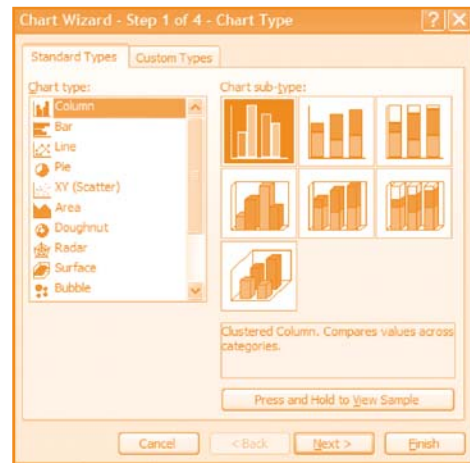
Highlight the columns that you would like to create the graph from, i.e. metres rowed against split/500. To highlight two columns that are not next to each other, highlight the one for the x-axis (metres) then press Ctrl on the keyboard and highlight the next column for the y-axis (split 500m). This should look like this:

Note: At the top of the Metres Column there is a blank cell highlighted, this is because the Split shown is the average split for the session.

Once the two columns have been highlighted press the Graph button



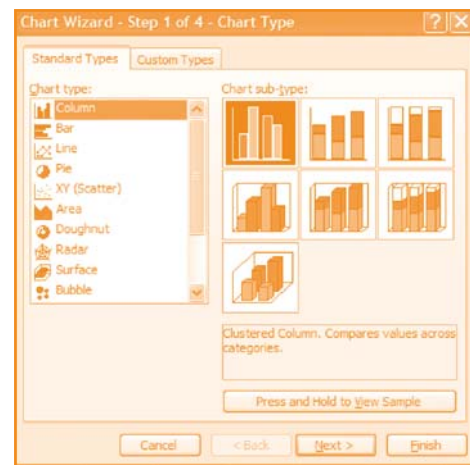
Select the line graph option. This will show you the following screen:



To make sure that your graph will look right press and hold the button that says "Press and Hold to View Sample".

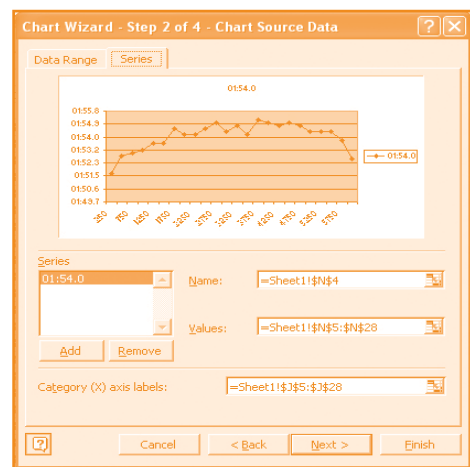
Press "Next >"

This will give you a screen like this:



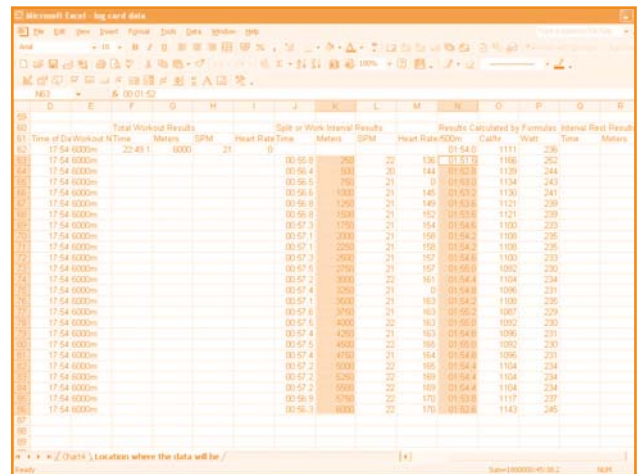
If your graph looks correct press "Next >". If it is not correct then you will need to adjust the series that the graph is being created from. To do this press the Series tab.

This will show you the following screen:

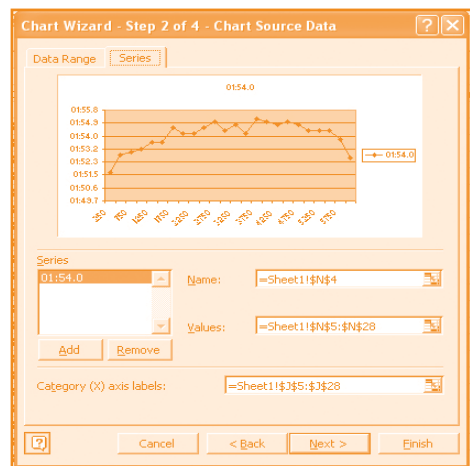


First make the x-axis correct by pressing the X-axis button. This will allow you to highlight the cells in the original spreadsheet that you want for the x-axis. In this case the metres cells. This will look like this:

Note that the cells have remained highlighted but the ones that you want for the x-axis have to have the dotted black line around them. Once you are happy that you have selected the correct cells then press "Return" on the keyboard.



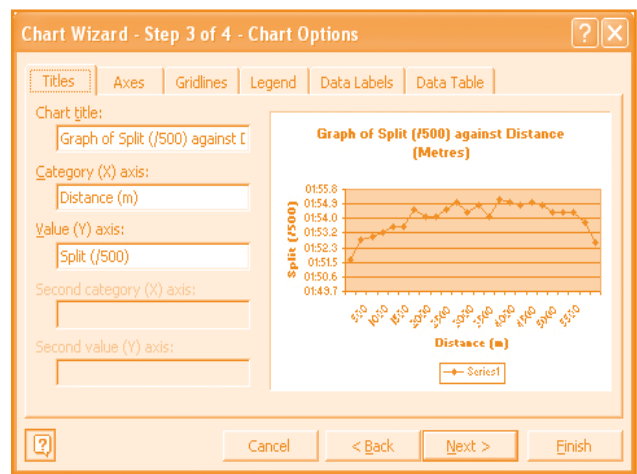
This will return you to this screen:



To adjust the y-axis press the y-axis button and follow the same steps as on previous page. Once you have highlighted the cells that you want press return on the keyboard and then click "Next >".

Fill in the correct Chart Title, X-axis and Y-axis titles then click "Next >". To move the Legend (where it says what the series is) press the Legend tab at the top.

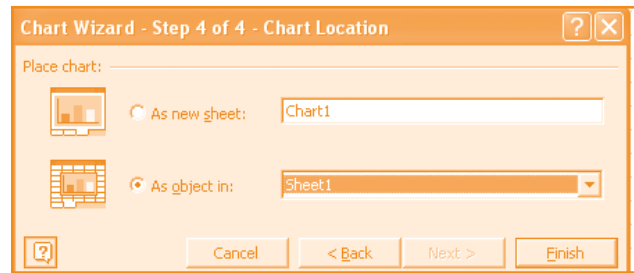
You must then decide whether you would like the graph to be produced within the original Spreadsheet or in a new sheet.



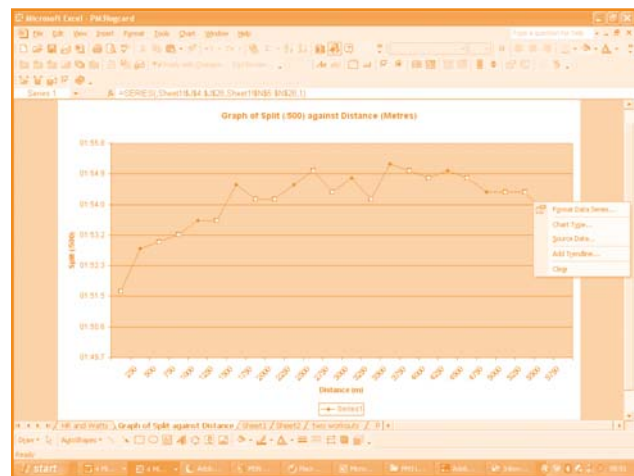
Selecting “As a new sheet:” is preferable as it means that you can access the graph and the data without having to scroll around the page or move the graph.

If you choose “As new sheet:” then you will need to enter the name that you want to appear on the tab at the bottom of the sheet.

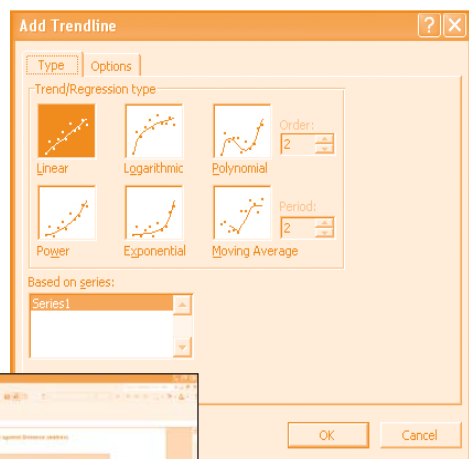
Click “Finish” and your graph will be produced.



Your graph will be produced as opposite. To add a Trendline to the graph right click with the mouse on the line of the graph. This will show the box of options as shown above. Select “Add Trendline...” and then choose the type of Trendline you would like to add from the list.

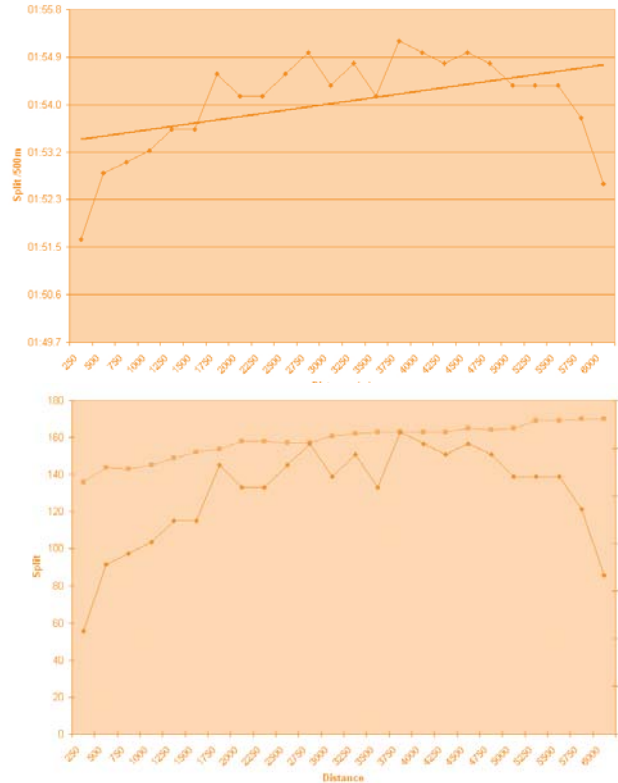


Select the type of Trendline you would like and click “OK”. This will produce your finished graph.



Now that the graph has been created you can use it in other documents by selecting Edit, then Copy, from the top of the page, or pressing 'Ctrl + C' then pasting the graph into another document like this:

It is also possible to create a graph with two sets of data with a different axis at each end e.g. Split/500m at one end and Heart Rate at the other. Such an example is shown below.



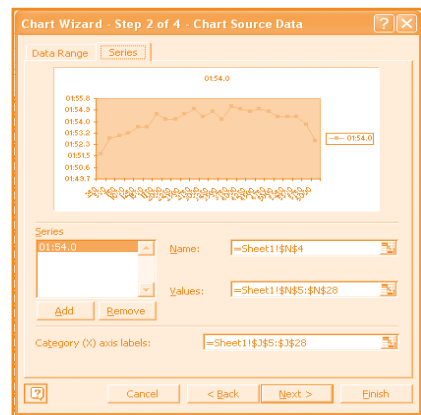
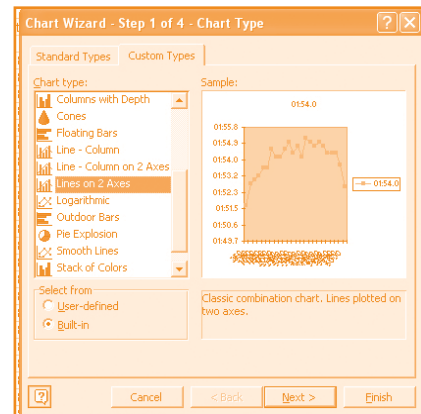
To create a graph like this you need to start the process as above but when you get the Chart Wizard you need to choose the Custom Type, "Lines on 2 Axes".

Click "Next >" and select the Series Tab.

Add the first series as before then press "Add" and go through the same procedure as previously to add the second series. Press the button marked above as Series Data and select the series from the Spreadsheet. Then continue the process as before.

Once this is done you need to change the title of the Series so that you know which is which. To do this either type into the box marked above as Series Title, or press the button and select a cell containing the title from the original spreadsheet.

Try experimenting with different types of graph to see which displays your results the best.



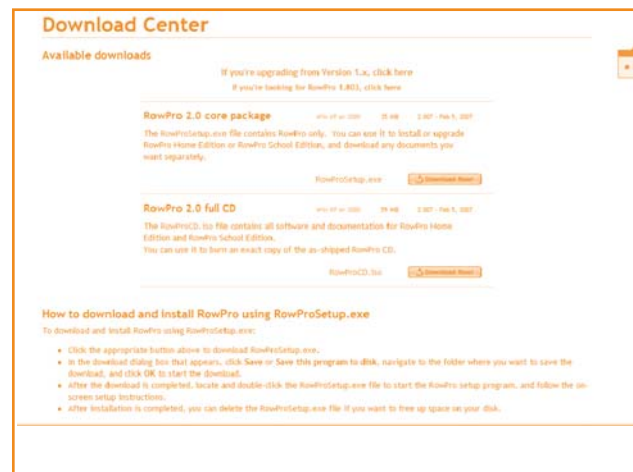
Downloading the Concept 2 Rowing Log

Open up the Internet Explorer (Start > Internet Explorer). Then type in the address:

www.digitalrowing.com

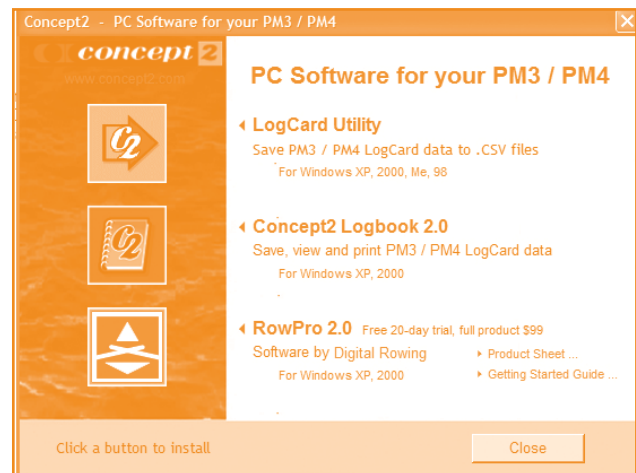
Find the link which allows you to download a free trial. When you download the free trial it will download both the RowPro software and the Concept2 Logbook

Click on either of the Download Now buttons to download RowPro. A box then appears where the installation file can be saved to an appropriate location. Click OK then the file will start downloading. After the file has been downloaded click Run to start the installation and follow the on screen set up instructions. The installation can also be completed as a later time by locating and double clicking the installation file to start the RowPro setup program. Once again follow the on screen instructions to complete the installation.

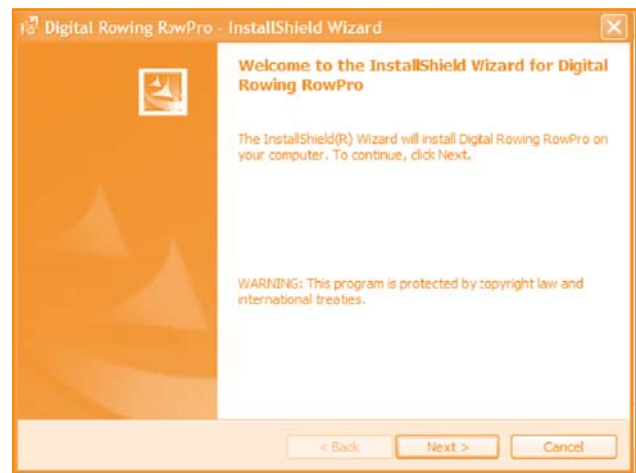


Installing the Concept 2 Rowing Log from CD

Insert the CD titled "Software for your PM/PM4". This will automatically open the Concept 2:PC Software Suite (if this does not open automatically go to the start menu, select my computer, select the CD drive). This should look like this:



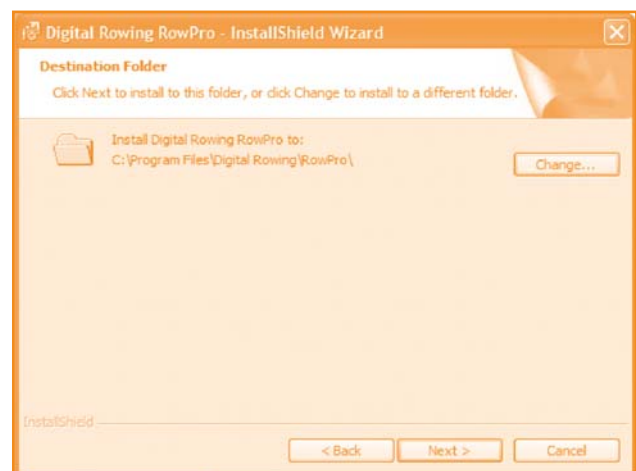
Click on the button next to the Logbook image. This will display the screen opposite:



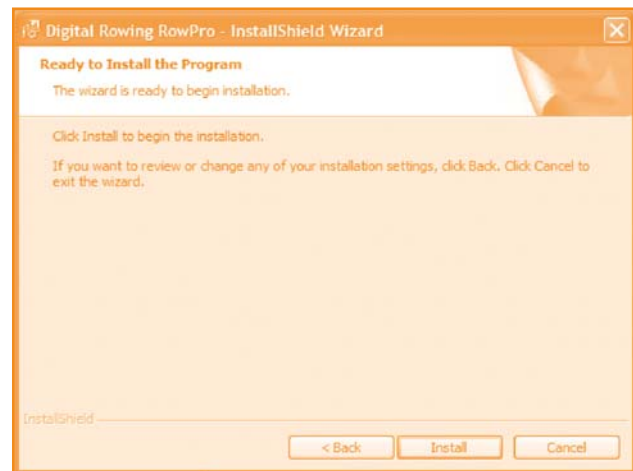
Click Next > If a license agreement appears the read and accept it

The Software will load by default in to the Program Files folder on the C: drive. It will create a folder called Concept 2 if one does not already exist. If you would like to change the location of this program click change and select the folder where you would like it.

You will then be shown the following screen.

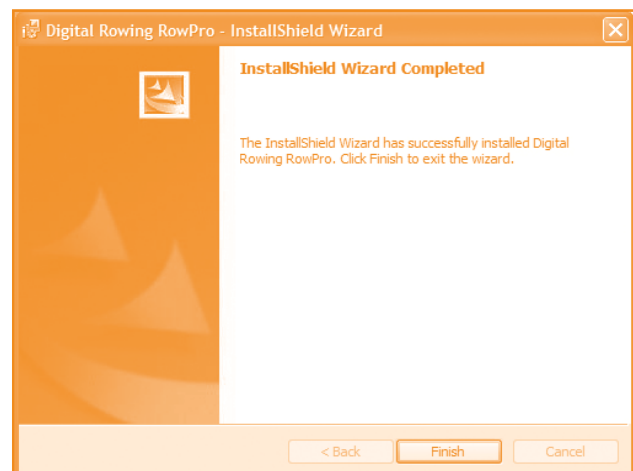


Click on Install and the program will install onto your computer.



Once the Program has installed you will be shown this screen. Click Finish and you are ready to use the Concept 2 Rowing Log.

It is also possible to download the rowing log by downloading the free trial version of Row Pro



www.digitalrowing.com/

Using the Concept 2 Rowing Log

Using the USB cable that comes with the PM, connect your computer to the monitor. (The connection for the USB cable can be found at the bottom of the monitor).



Port for the optional heart rate receiver.

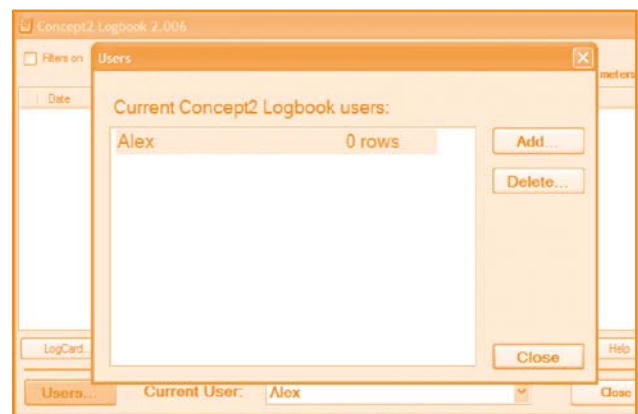
USB Port for connecting to a personal computer.

Flywheel sensor cable must be connected here for the PM to operate. The Model D/E sensor will also supply power to the PM while you are rowing. The PM can be set to operate with any Model of Indoor Rower.

Open the Concept 2 Rowing Log. (Start > All Programs > Concept2 > RowPro > Concept2 Logbook). This opens up an initial box like the one opposite:

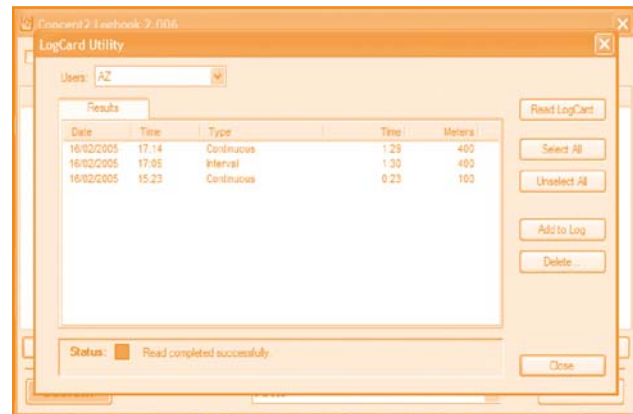


To add a user click the Users button and add the name of the user as shown.



Add new data from the PM LogCard

To add new data from the PM LogCard click on the LogCard box. Then click on Read LogCard. After the LogCard has been read the box opposite should appear opposite:



To add data to the Rowing Log select the required data and click on the Add to Log box. After all the required data has been added click Close. This will return you to the C2 Rowing Log with the information on it, which should look something like this:



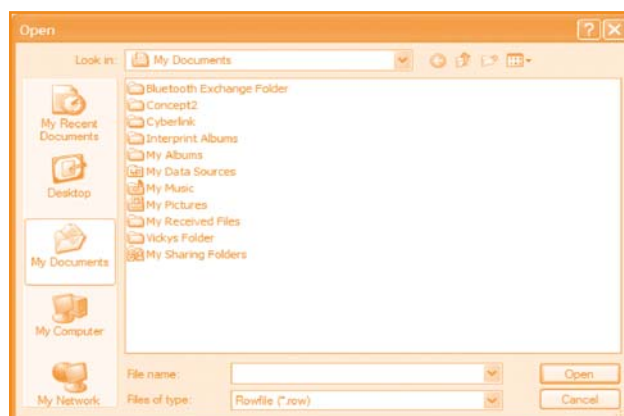
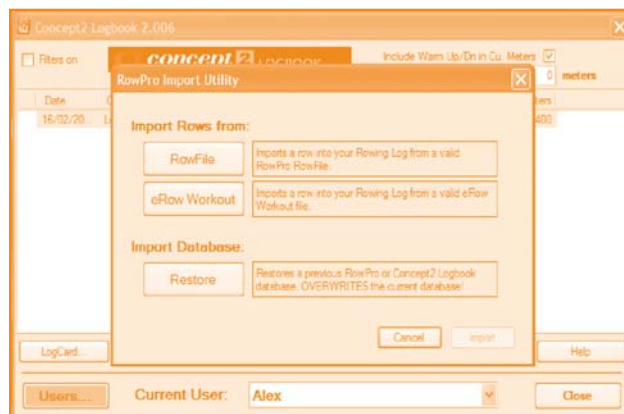
Importing data to the C2 Rowing Log

When at the initial C2 Rowing Log page (similar to that of the last picture and occurs after opening the C2 Rowing Log), click on the Import Rowing box. This will open a box like the one opposite:

Select the required data type either: Import a RowPro RowFile, Import an eRow workout file or Restore a previous RowPro/Concpet2 Logbook database. Note: The last option overwrites the current database.

Then click Import.

Click on the appropriate data, then click on open and this will then add the data to the C2 Rowing Log.



Adding data manually to the C2 Rowing Log

From the initial C2 Rowing Log page click on the manual entry box. This will then open up another page which should look similar to the page opposite:

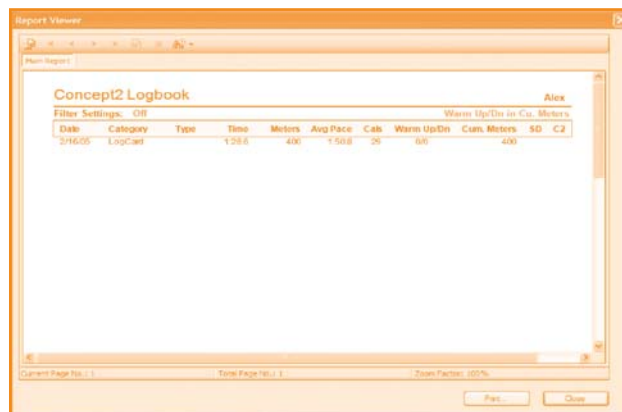
Then the user should enter the data that they want to, manually into the appropriate boxes. Then click on the Add Split box. If any data is entered incorrectly and needs to be removed then click on Remove split. Then to add the data to the initial C2 Rowing Log page click on add row. Once all the data has been added click on Close which will take the user back to the C2 Log page.



To Print a Report

From the initial C2 Rowing Log page click on print report. This will then open up a page like the one opposite:

From this page then the report can be printed by clicking on the Print box or the page can be closed by clicking the Close box.



Reset View

In the initial C2 Rowing Log page click on the Reset View box to put the view back to how it was.

Help

If any help is needed then the user should click the Help button which can be found on the initial C2 Rowing Log page. Here most problems encountered can be tackled.

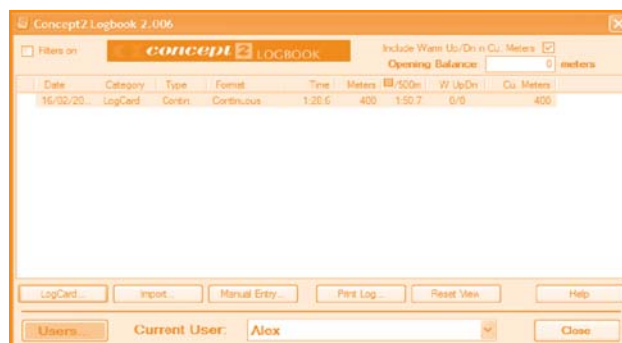
Generating a Report using the C2 Rowing Log

Using the USB cable that comes with the PM, connect your computer to the monitor. (The connection for the USB cable can be found at the bottom of the monitor).

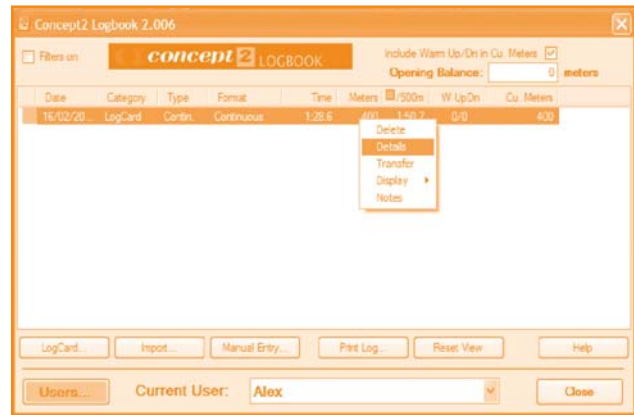
Open the Concept 2 Rowing Log. (Start > All Programs > Concept2 > RowPro > Concept2 Logbook).

This will lead to a C2 Rowing Log without any information on it. To add the data to it, click on the LogCard. This then opens up a box with the recorded data in it. Click on the box beside the desired data and then click Add to Log. Then to close box click on Close.

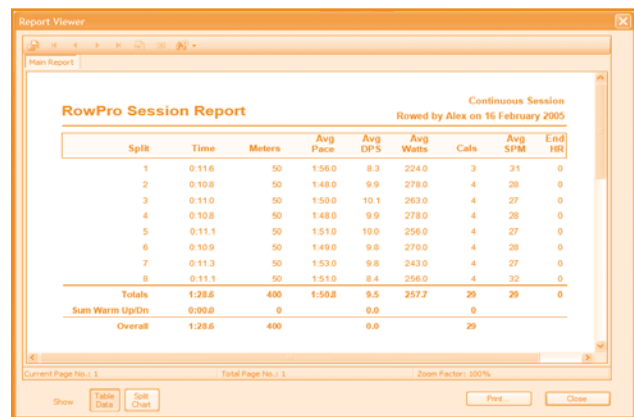
This will open up the C2 Rowing Log which will then look like this:



Highlight the data line required, then right click the highlighted area to see the options tab. Click on Details in the tab.



This then generates a report similar to the one opposite. The report can then be printed by clicking on the Print button or closed by clicking on the Close button.



Deleting Files from the LogCard Using the Concept 2 Rowing Log

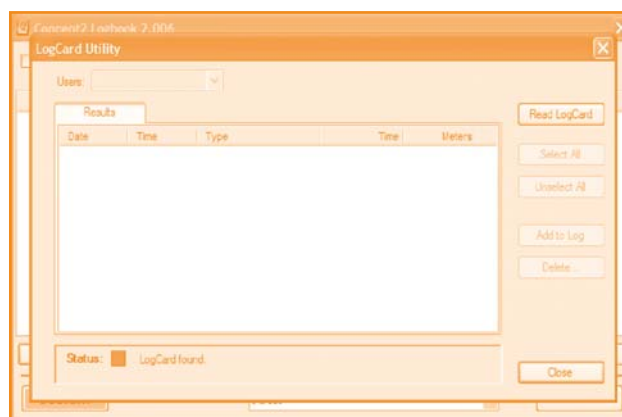
Using the USB cable that comes with the PM, connect your computer to the monitor. (The connection for the USB cable can be found at the bottom of the monitor).

Open the Concept 2 Rowing Log. (Start > All Programs > Concept2 > RowPro > Concept2 Logbook).

This will open up the C2 Rowing Log which will then look like this:

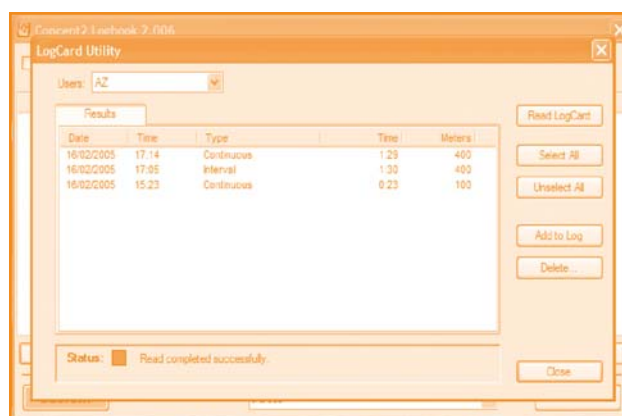


To add new data from the PM/PM4 LogCard click on the LogCard Box. The following screen will appear:



Click on Read LogCard. After the LogCard has been read the box opposite will appear:

Highlight the workout that you would like to delete, then click Delete. This will remove the workout from the LogCard.



Warning: Please be advised this action is irreversible.

Downloading the Venue Racing Software

Open up the internet explorer (start > internet explorer).

Then type in the address:

www.concept2.co.uk/software/venue_racing.php

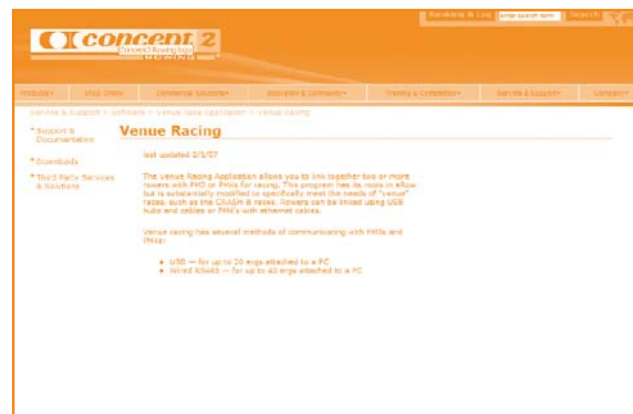
Click on downloads. This then leads to the next page like the one opposite:

Then click on the Save or Run box, accept and click ok. Then the software will be downloaded and then can be used.

A download dialogue box will now open giving the options Run, Save or Cancel.

To install immediately click Run. When the download is complete click Run to start the installation. This will open the Installation Wizard to complete the installation.

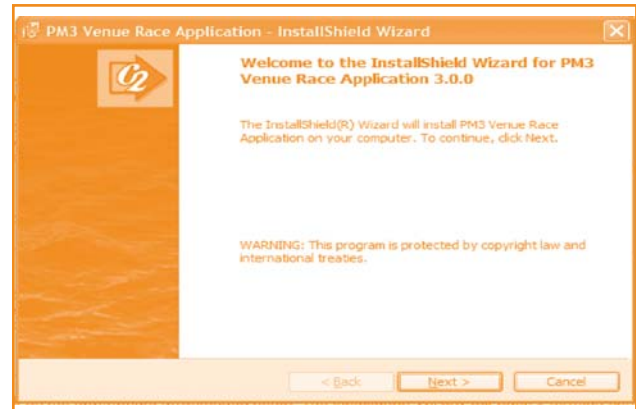
To install at a later time click Save and select a download location for the installation file. Once the file has been downloaded the software can be installed at any time by navigating to the download location and double clicking on the installation file. As above this will open the Installation Wizard.



Installing the Venue Racing Software

Double click on the appropriate downloaded setup, The Installation Wizard will pass it through some set up pages before coming to the page opposite:

Click on the next button:

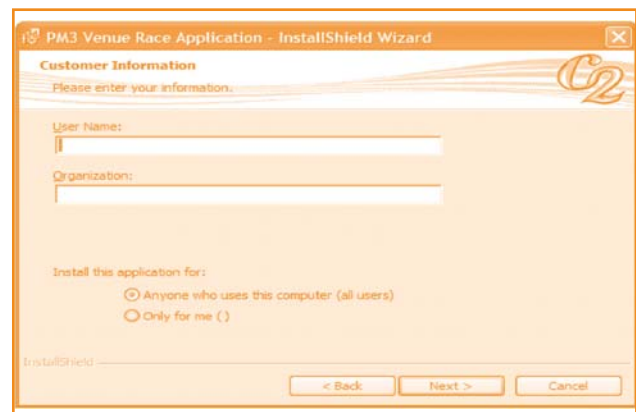


This then leads on to the next page which should look like similar to the window opposite:

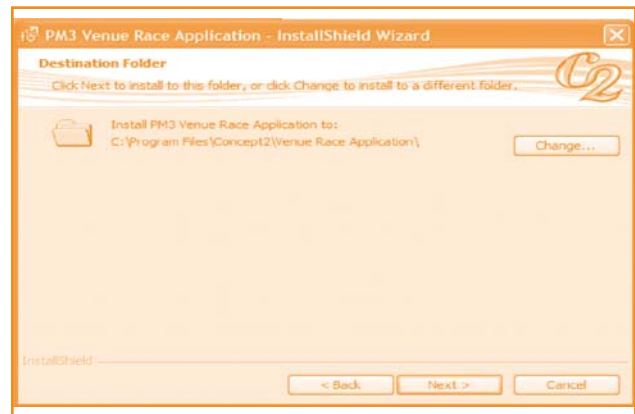


Accept the terms of the agreement, then click next, which should proceed to the next page.

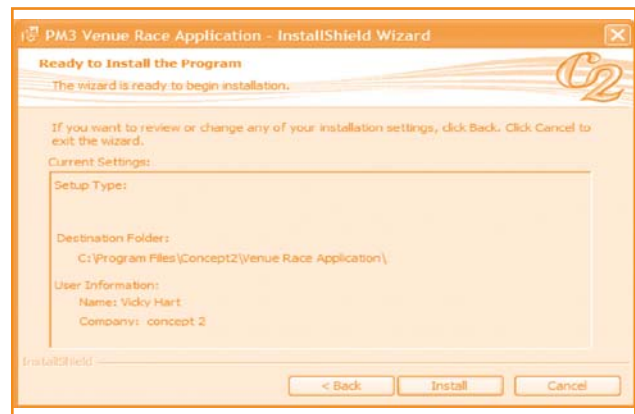
Fill in the appropriate information, and then click Next.



This should lead to the page opposite. If the destination to install the Venue Race application is okay, then click next, but if the destination is not the desired one then click change and set the appropriate destination. Then click next.



The box opposite then appears confirming the installation information. If this information is okay then click Install, but if this information is wrong then go back and change it.



The installation then occurs and then when the installation finishes click finish to close the installation box.

Using the Race Venue Software

Prior to running a race, you must decide on which method to use to connect the Performance Monitors to the Venue Race Application. This is often decided by the size of the venue. The following table can be used to determine the method of connection that will best suit your race. For most systems in schools we recommend the use of the Ethernet method because it is less complicated and more stable.

Connection method guidelines

CONNECTION METHOD	RECOMMENED VENUE SIZE	MAXIMUM RESTRICTIONS	REQUIREMENTS
USB	2 - 10	Maximum 28 (Can be unstable)	Hubs
Ethernet (RJ 45)	2 – 40	Maximum 40	PM4

Installing the Venue Race Application (VRA)

Before racing, your PC needs to meet all minimum requirements and make sure that all PC power management features such as screen savers are turned off.

Download any of the Concept 2 applications or utilities from:

www.concept2.co.uk/software

Run the setup.exe file you downloaded.

Click I agree and then click Next.

Continue clicking Next until the installation is complete.

All the utilities will be placed in a Concept 2 folder in your programs menu and shortcut icons will appear on your desktop.

Use in Schools

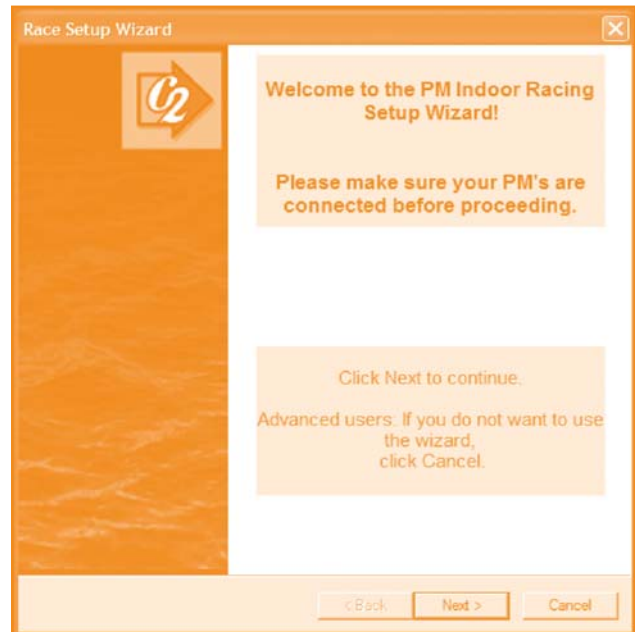
For most systems in schools it will be appropriate to use the Ethernet system as it is more stable and less complicated than other systems.

For support on connecting machines together call us on 0115 945 5522

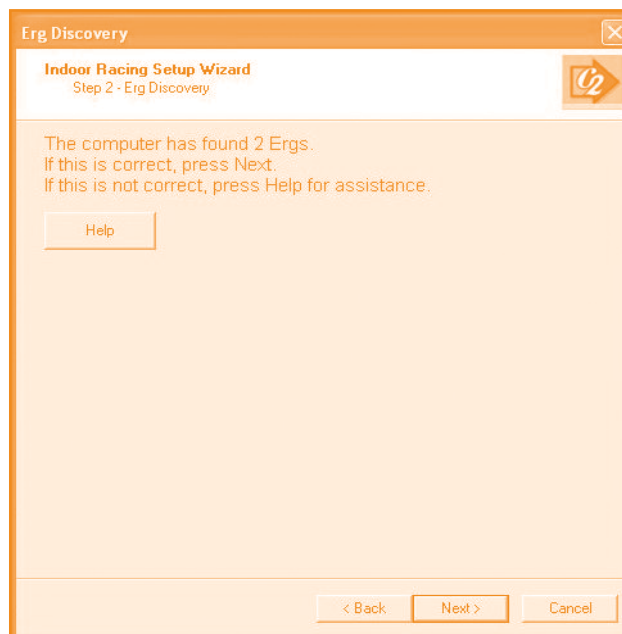
To access the race venue software click Start, Programs, Concept 2 and then double click on Race Venue.

The page opposite then opens up, click on Next which then proceeds to the following page:

Here select the appropriate interface options, which will usually be Ethernet (Expansion Modules), and then click Next. A similar page should appear.



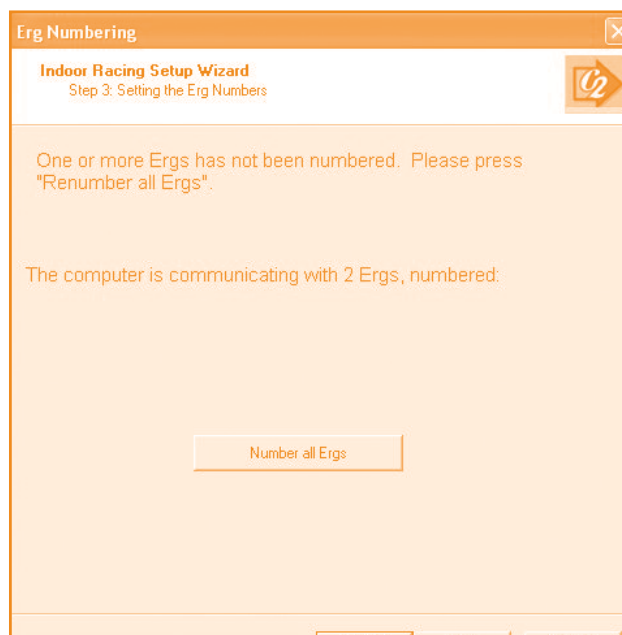
The computer will then discover the Indoor Rowing Machines (Ergs). Please make sure that the monitors are on when discovering the machines on the race system. If the right amount of Ergs are found, click Next. But if this number is wrong then click Help and rediscover. Keep discovering until the right amount of indoor rowing machines is found by the race venue software. Once they are discovered click Next. Then a similar page should appear:



Then click Number all Ergs, and then go to all of the monitors and press the next lane button. Use the accept or reject lane options to assign the appropriate lane numbers to the Ergs.

After accepting these lane numbers click the Done Numbering button which appears on the screen. And then click Next.

This will then take you on to the following page



Then select the appropriate options, in stages 1, 2 and 3, then click Next.

Then fill in the participants name into the appropriate box. Click Next which should lead on to a page similar to the page opposite:

Race Setup

Indoor Racing Setup Wizard
Step 4 - Race Setup

Enter the race type, grouping, and heat name, then press Next.

1. Enter the race distance or time -> Distance Meters
 Time hh:mm:ss

2. Race as -> Singles
 Doubles
 Fours
 Eights

3. Enter the heat name ->
This will be displayed on the PM3 during race warmup

< Back Next > Cancel

Then click Finish and the box opposite should appear:

Here the race data can be saved by changing the file name and/or changing the desired location, and then click Save.

Lower Setup

Indoor Racing Setup Wizard
Step 5 - Enter Participant Names

Enter the number of boats and the names if desired, then press Next.

Number of boats in race ->

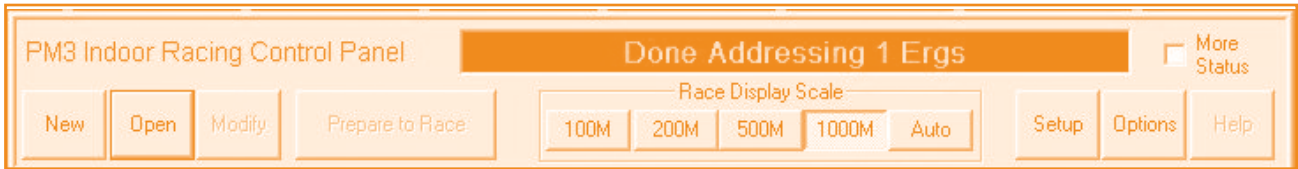
	Participant Name
1	
2	
3	
4	
5	
6	
7	
8	

< Back Next > Cancel

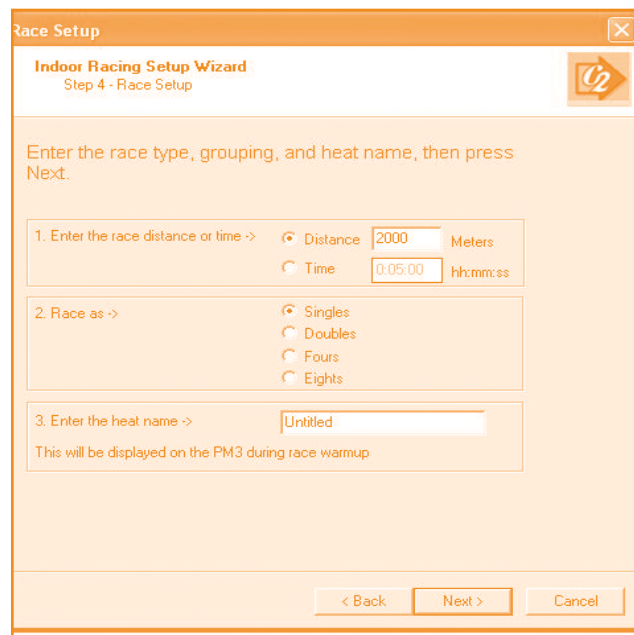
Then the program is set up and all that remains to be done is click on the Prepare to Race button in the Indoor Racing Control Panel. The screens will then count down and the race will begin.

How to set up a New Race Venue System Software

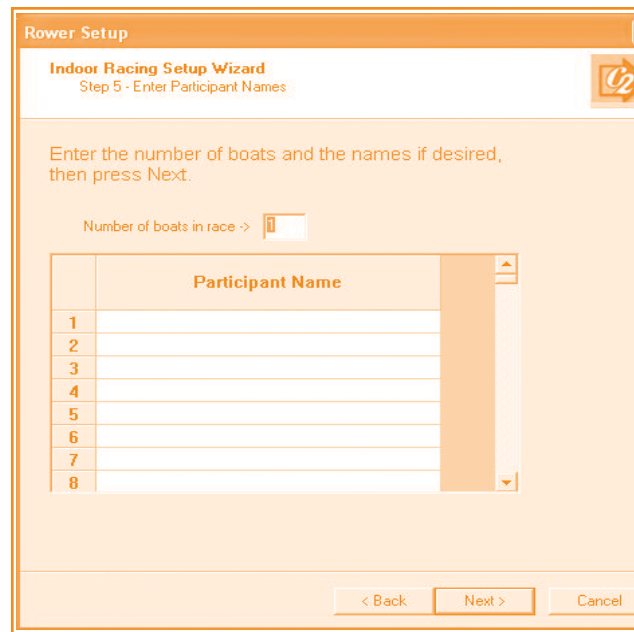
On the above panel click on the New button. This will then take you on the following page:

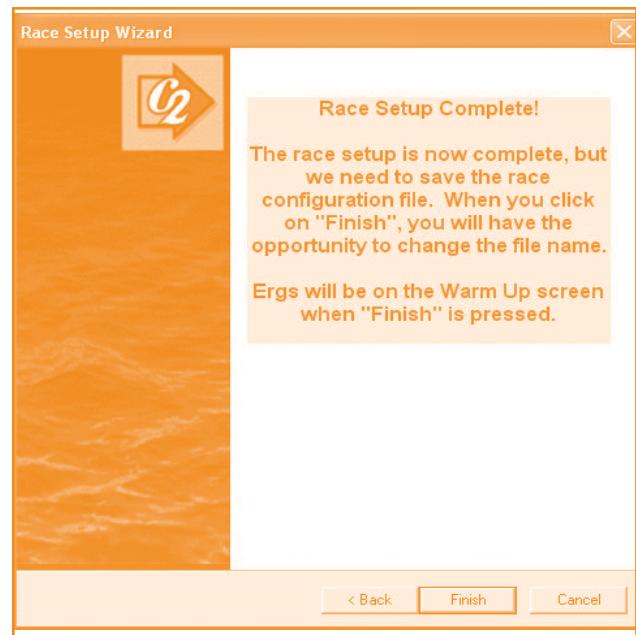


Then select the appropriate options and click Next.



Then fill in the participants name into the appropriate box. Click Next which should lead on to a page similar to the window shown

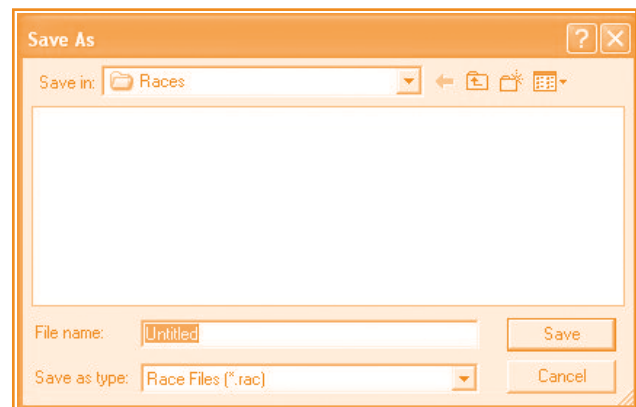




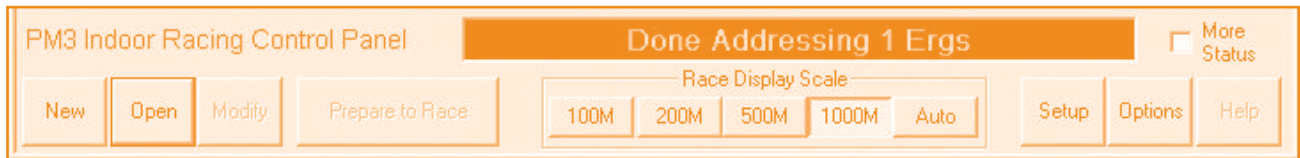
Then click Finish and the following box should appear:

Here the data can be saved by setting the desired file location, changing the file name and clicking Save.

Then the program is set up and all that remains to be done is click on the Prepare to Race in the Indoor Rowing Control Panel. The screen will then count down and the race will begin.



Opening Saved Races

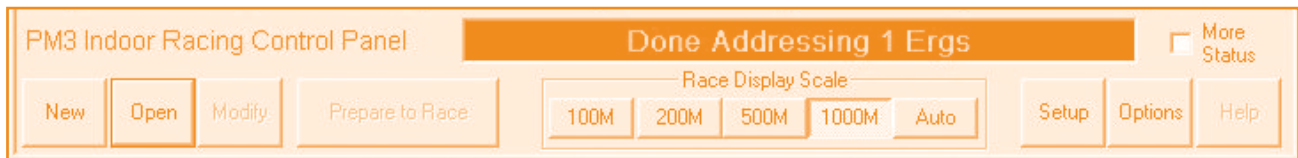


Inside the Indoor Racing Control Panel shown above, click upon Open. This following box will pop up.

From this box, Modify Race, the data can be changed from the original data which was saved. Once the information has been altered click on Ok. Then the program is set up and all that remains to be done is click on the Prepare to Race in the Indoor Rowing Control Panel. The screens will then count down and the race will begin.

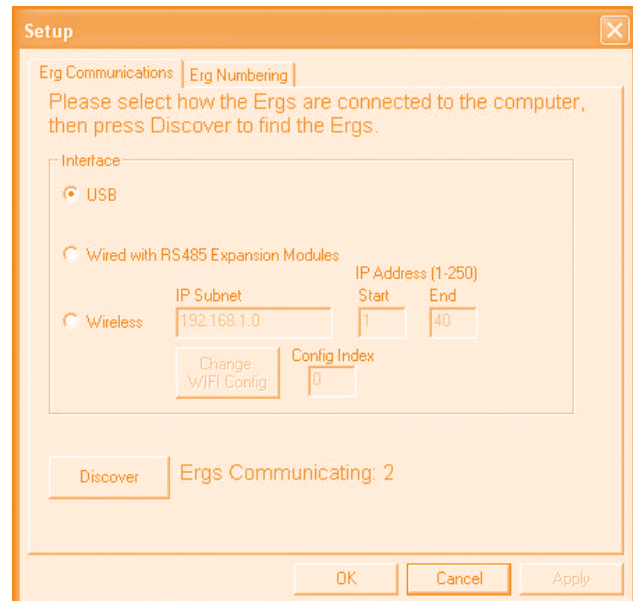
	Participant Name	Count ry	Birthdate (mm/dd/yyyy)
1	Lane1		
2	Lane2		
3			
4			
5			
6			
7			
8			
9			
10			
11			

How to Change the Race Setup

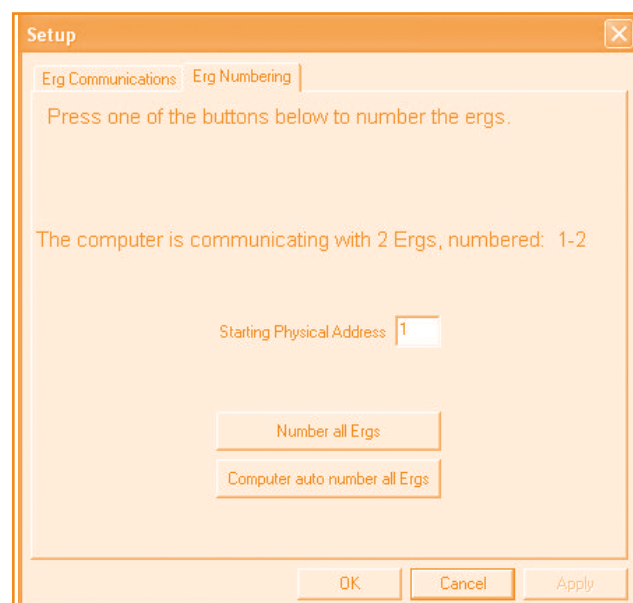


On the Indoor Racing Control Panel, shown above, click on the Setup button. Then the following picture should appear. Here the way the rowing machines communicate to each other can be altered and new machines can be discovered if they are lost.

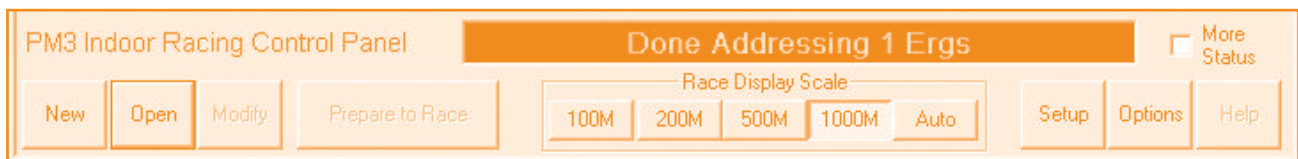
By clicking on Erg Numbering tab the machines numbers can now be altered.



Once the appropriate ergs have been altered then click Ok so the settings can be used in the race setup.

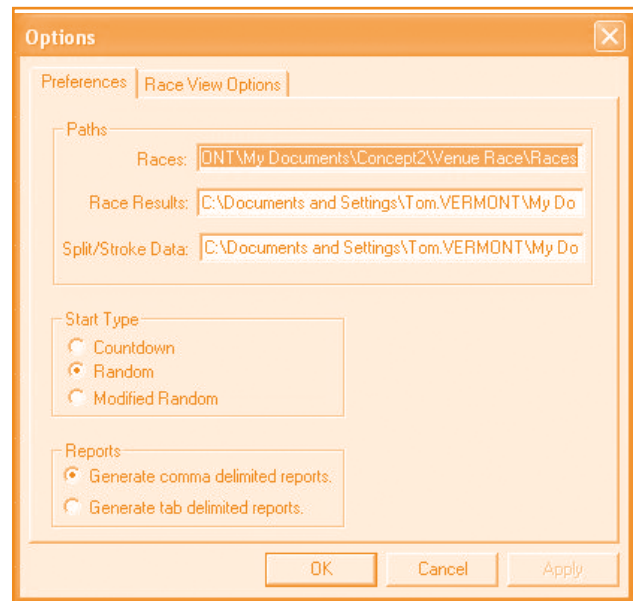


How to Change the Race Options

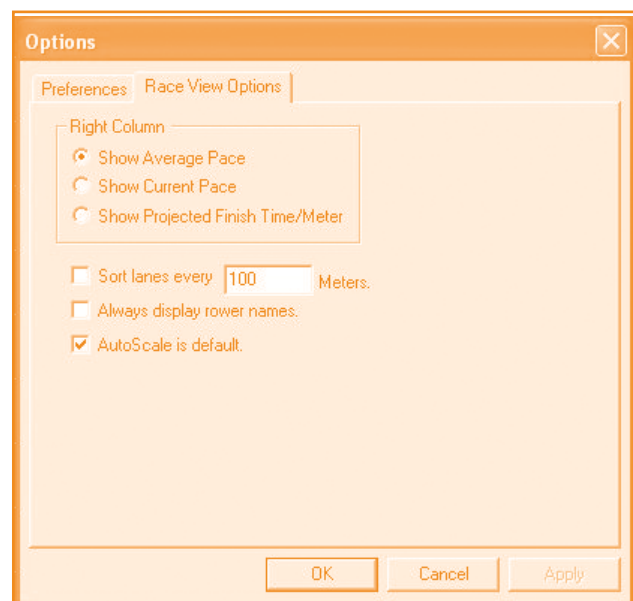


By clicking the Options box on the Indoor Racing Control Panel, the following box appears:

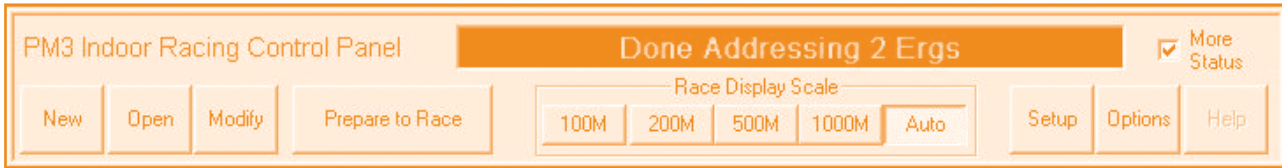
Clicking on the Preferences tab a screen similar to the one opposite should appear. In the Paths section of this box race data, race results and split/stroke data can be easily changed by typing in the desired location. In this options box the start type can also be altered to that desired by clicking on either Countdown, Random, or Modified Random. Report types can also be altered in the Options Preferences. Then if the Race View Options tab is clicked the following view will appear:



Here the view of the race can be altered easily by clicking and ticking the appropriate boxes. Once the appropriate changes have been made then Ok can be clicked and the view will return to the race screen.

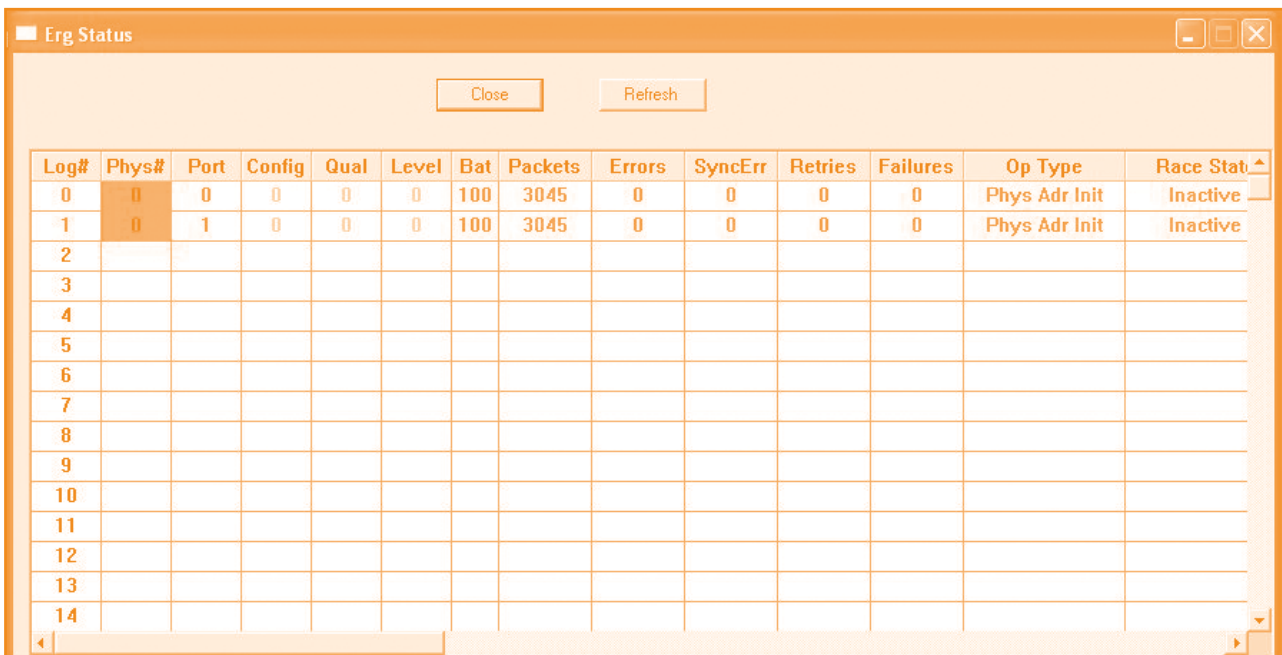


Showing More Race Information

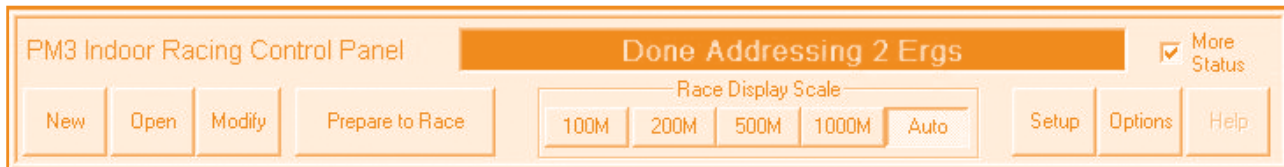


Within the Indoor Racing Control Panel, if the More Status box is clicked then the following box appears which shows more information. If the data has been changed then click Refresh to get the updated sheet.

To close the Erg Status box click on the Close box.



Changing the Race Display Scale



To change the scale of the race screen either click upon the race display scale on the following box:

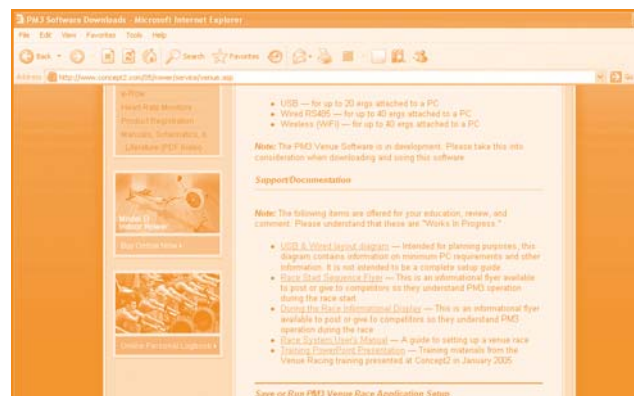
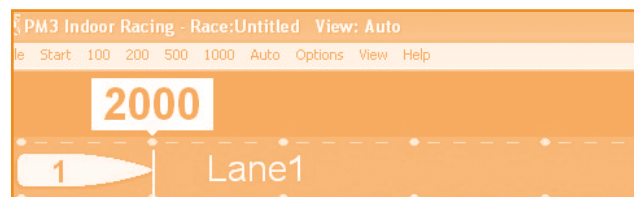
Or the race display scale can also be changed by clicking on the 100,200,500,1000 or Auto and the scale will change appropriately:



How to Get Help

To gain help in the Race Venue Software click on Help on the top bar of the software shown below, or click on Help with in the Indoor Racing Control Panel.

For support on connecting machines together call us on 0115 945 5522



Downloading the Firmware Updater

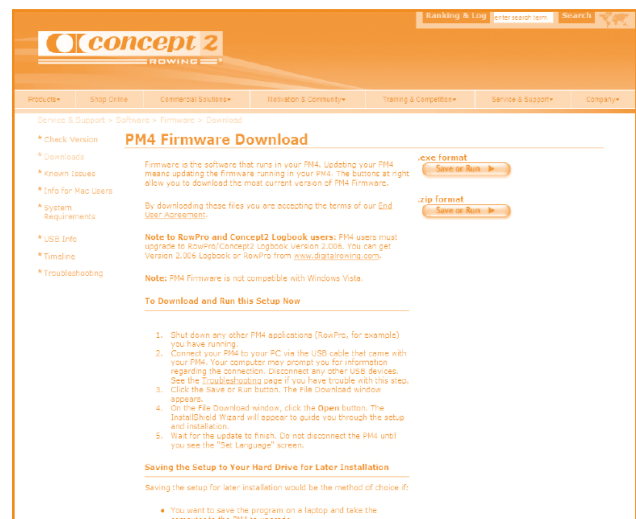
Open up the internet explorer (start > internet explorer) go to the following address and select the correct PM version on the left menu **www.concept2.co.uk/software**

Click on the highlighted Firmware Updater. This then leads to the next page like the one opposite:

Select your model of Performance Monitor, which will lead you to an overview of the Firmware. To start you download, click on the highlighted Download.



Then click on the Run or Save box, accept and click Ok. Then the software will be downloaded and then can be used.



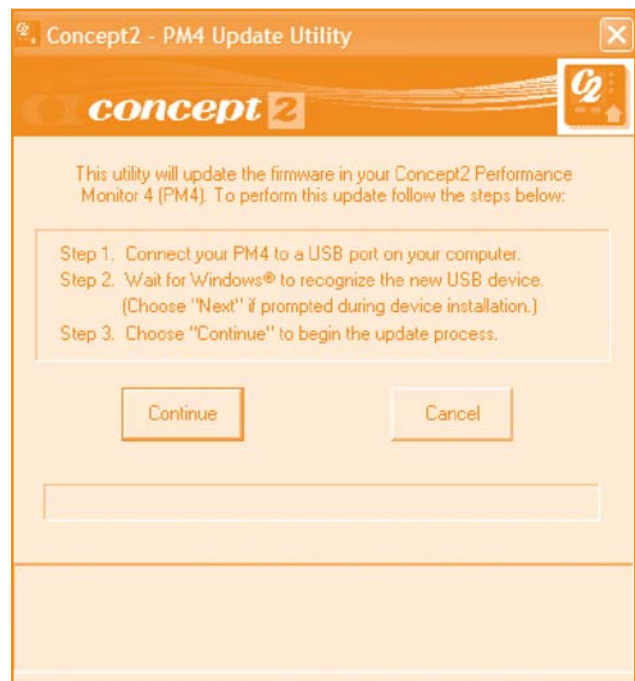
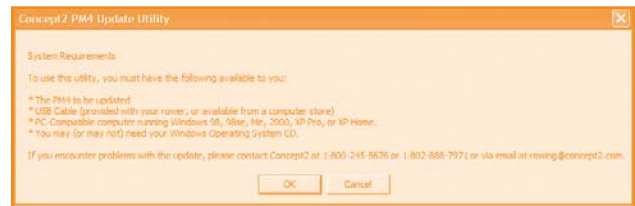
Installing the Firmware Updater

Double click on the appropriate downloaded setup, and then something similar to the following box will appear:

This information comes up on the screen. Click OK to continue. The page then proceeds onto a page similar to the one opposite:

Work through the steps 1, 2, and 3 shown on the page and the press Continue to begin the firmware update process.

Once this process has happened, click OK on the finish box which pops up.

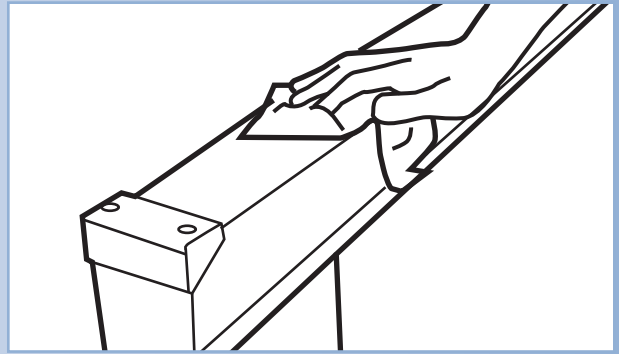


Your Concept2 Indoor Rower is a sturdy, low maintenance machine. A little regular care will keep it in tiptop condition.

Recommended Procedures

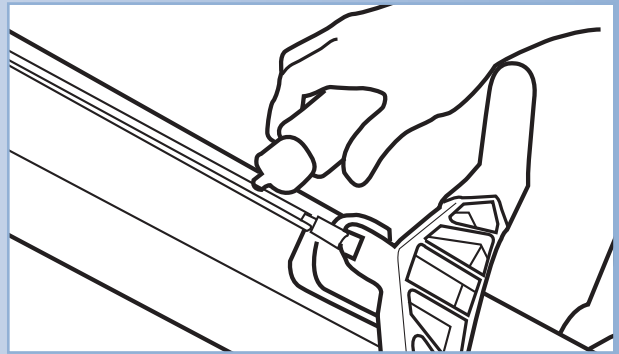
Every Week:

- Wipe the monorail with a clean cloth or non-abrasive wipe to prevent the build up of grime and compacted dust on the surface.



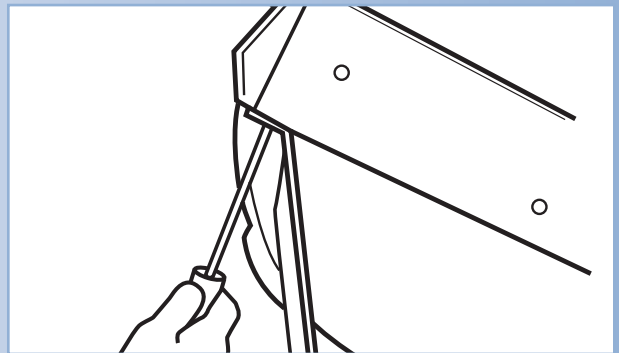
Every month:

- Clean and lightly lubricate the chain. Oil is provided with new machines but ordinary '3-in-1' oil is perfectly adequate.

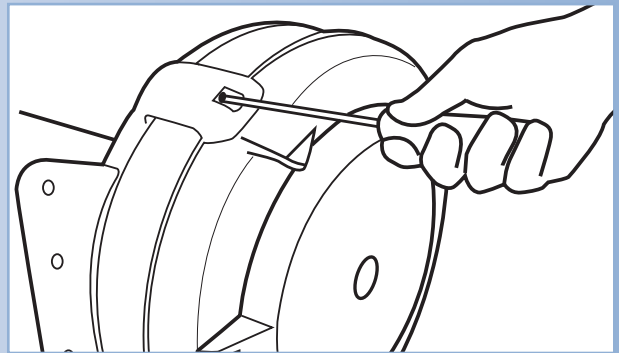


Every month:

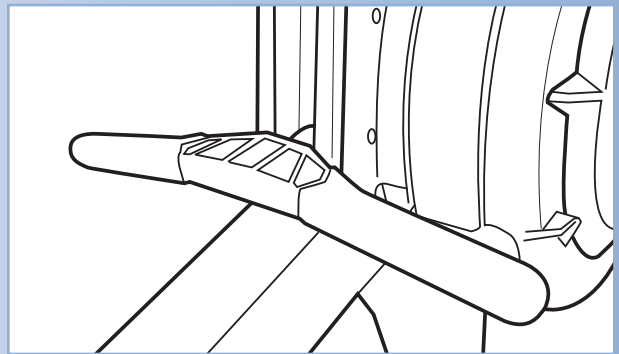
- **Screws:** Check the socket screws that secure the legs to the main body and tighten if loose. Lost screws should be replaced immediately.



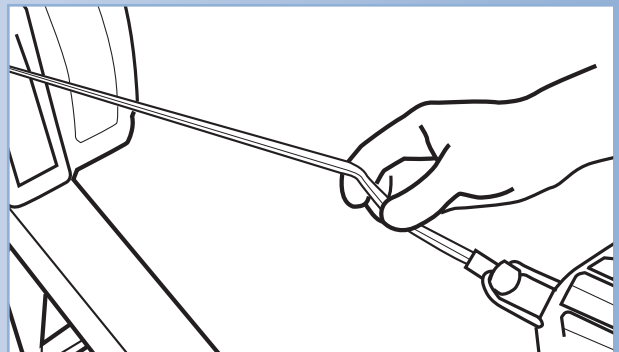
- **Dust:** Loosen the cover and check for dust inside the fan housing and brush or vacuum to remove if necessary. Excess dust and fibre will reduce the machine's performance.



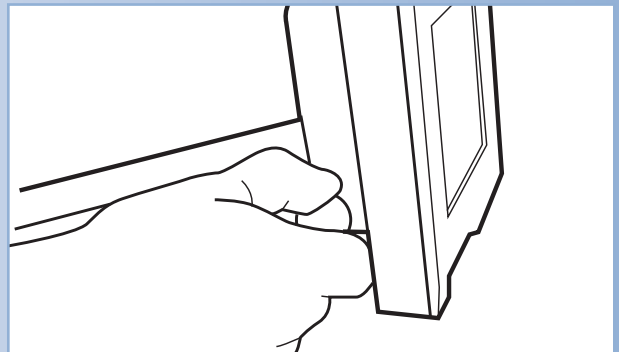
- **Shock-cord:** Check that the handle returns firmly all the way to the fan enclosure. If it hangs loose (instead of being held tightly against the chain guide), tighten the shock cord. (refer to manual or website for instructions.)



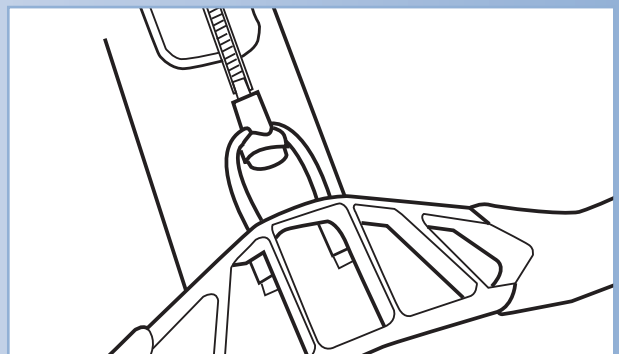
- **Chain:** Check the chain for stiff links. If lubrication does not solve the problem, replace the chain.



- **Monitor arm:** Adjust the tightness of the monitor arm nuts. These can seize or work loose over time.



- **Chain-to-handle connection:** Check the chain-to-handle connection for wear. If the brass ferrule is worn or broken, the hole elongated or the U-bolt is worn replace the brass ferrule.



Monitor care

- **PM monitors.** The batteries simply need to be replaced when running out. The monitor will cease to function correctly after around 800 hours of use as the batteries lose charge. PM = 2x D-Cell batteries.
- **PM4 monitors.** May have a rechargeable battery pack installed, which is designed to be recharged when the machine is used. However - light or occasional use may not fully recharge these packs. If this is a problem you can use 2x standard D-Cell batteries with the PM4.
- **Many Indoor Rowing machines** are positioned near swimming pools. If so, check regularly for corrosion (resulting from high humidity) in the battery compartment. If found, please contact Concept2 for advice.

Important Note

1. The performance monitors are sealed units and any attempt to disassemble will void the warranty. Concept2 offer a repair service; please contact them on 0115 9455522 or info@concept2.co.uk if you have any problems.
2. Using the machine with worn or weakened parts may result in injury to the user. When in doubt about the condition of any part, replace it immediately. Use only genuine Concept2 parts to avoid injury and poor performance.
3. Ensure that the chain does not get looped over itself and that teams do not pull the handle sideways during racing changeovers. Both these actions can damage the chain, which will then need replacing.

The following are the recommended Health and Safety procedures related to the user's personal safety when Indoor Rowing, and to the safe use of the machine.

Adherence to Health and Safety requirements is a fundamental element of good practice with possible severe legal implications for failure to comply. Not surprisingly Health and Safety is foremost in the mind of all good instructors, club owners and teachers.

Precautions for the User's Personal Safety

Instructors, trainers, teachers and coaches should always have the safety and well being of their clients as their first concern. By taking care and observing a few sensible precautions, you should be able to ensure that everyone gains maximum benefit from using the machine with minimum risk of harm or injury.

5 key recommendations:

1. Know the fitness status of the individual

It is good practice, and a wise precaution, to check the health and fitness status of anyone about to embark on an exercise programme. Most fitness clubs and leisure centres do this as part of their induction. The PAR-Q (Physical Activity Readiness Questionnaire) on page.... is an effective way of screening anyone who may present a risk. We recommend individuals who fall within the following categories should be seen by a doctor before beginning an exercise programme:

- **Anyone who has not exercised for sometime.**
- **Anyone over 35.**
- **Anyone with diabetes, high blood pressure, high cholesterol or a family history of heart disease.**
- **Anyone overweight or with a sedentary lifestyle.**
- **Any woman who is or may be pregnant.**
- **Anyone who answers yes on the PAR-Q Questionnaire.** (found at the end of section)

2. Wear sensible clothing

Special clothing is not needed other than comfortable sports clothing that is not restrictive and allows freedom of movement. Clothes should not hang below the seat and risk being caught in the seat rollers; training shoes should not be too bulky; and long hair should be tied back.

3. Warm up and cool down routines

Users should warm up prior to exercise and cool down after their workout.

As a warm up we recommended 3-4 minutes gentle rowing on the machine, then stretch the body. Work through exercises to stretch the hamstrings, shin, calves, thighs, the back, shoulders, arms and neck. Details follow this section.

At the end of the workout, the user should cool down by again rowing at a slow pace for 3-4 minutes and then follow this with some gentle stretches on or off the machine.

4. Teach the correct technique

Problems and injuries can be caused by poor technique. Teach the step-by-step routine we describe in the technique section to help users get the most from their exercise and to work safely on improving their fitness.

5. Promote sensible exercising

- The newcomer should start slowly. The exercise programme need only be 5 minutes in duration initially and should build up gradually.
- Care should be taken not to overdo exercise, either in the initial stages when quick results are sought, or as they get fitter. Users should work at their own pace and ease off if at any time they feel uncomfortable. Discourage competitiveness in the early stages.
- Users may need to be reminded not to exercise immediately following a meal.
- It is vital to keep up the fluid intake before, during and after exercise. Many problems arise from dehydration.
- Exercise programmes should be flexible. Users should be encouraged to assess how they feel, and be prepared to adjust their programme accordingly.
- Discourage exercise if the client is feeling unwell, particularly if they have a high temperature or a cold.
- During rehabilitation from injury, particular care needs to be taken to build up duration and intensity of workouts gradually.

Safe Use of the Machine

Always ensure that the machine is properly and routinely maintained. The Concept2 Indoor Rower is very robust and reliable. However, if it appears to have been damaged or is not functioning properly, DO NOT allow it to be used until you have had it checked.

Routine Precautions for Safety and Comfort

The user should be instructed in the following procedures:

- Check the handle, seat and monorail are clean and free from sweat or dust.
- Check the chain for damaged links.
- Set the damper level at a setting appropriate for the workout (3 is good for beginners).
- Sit slightly towards the back of the seat.
- Put the handle in the handle hook.
- Place feet in the footrests. Adjust and fasten the straps securely.
- Do not let go of the handle whilst rowing.
- Do not row with one hand. Always use both hands on the handle.
- At the end of the workout, replace the handle against the fan cage. Wipe down the seat, handle, monitor and monorail.

Stretching

1. Flexibility – Why is it so important?

Flexibility is a vital aspect of physical fitness. Good flexibility will allow you to move efficiently, with less effort and with less risk of injury.

Physical training can cause muscle imbalance, with shortening and over activity in certain muscle groups with other groups becoming over stretched and lacking in tone. A stretching programme should always take this into consideration, with the programme being directed at the muscle groups which have the tendency to become shortened or tight. Every sport has characteristic patterns of muscle shortening. Each individual will have their own tendency to muscle tightness. The following sections provide a basic guide to warm up and developmental stretching. Each individual should seek advice from a physiotherapist or fitness instructor as to the appropriate stretching regime for themselves and their sport.

2. Safety and Stretching

Participants should be responsible for preventing injury, familiarising themselves with potential hazards association with stretching (listed below) and taking steps to control them.

- **Never stretch hypermobile tissue, active painful musculo-skeletal or inflamed tissues (sprains or strains in an acute state). If in doubt consult a physiotherapist or fitness instructor.**
- **Make realist goals before you begin a flexibility programme, setting yourself a realistic time scale to reach your ideal level of flexibility.**
- **At all times tune into your own body, never stretch into pain or discomfort.**
- **Remember everyone is different, tailor the stretching regime to your own level of flexibility and needs of your sport.**
- **Always be accurate with your stretches, isolating the muscle group and tissues to be stretched and use correct technique. This means ensuring that the mechanics of the stretch are correct.**
- **Remember that flexibility training should be enjoyable and satisfying and should be an integral part of your overall fitness regime.**

3. Stretching as part of a warm up (Pre-Workout)

The following points must be considered:

- **Be warm before you start stretching. Wear plenty of clothing. It is better not to stretch at all than to stretch cold. Stretching cold can damage tissues.**
- **Always respect your body tissues; never stretch into pain, only to the point of tension.**
- **Stretch slowly – muscles and connective tissues respond best to long slow stretches (30 seconds for warm up stretching).**
- **Never bounce on muscle when stretching.**
- **Allow plenty of time to do your stretching.**
- **Never hang around after your warm up stretching; even a short delay will result in loss of warmth and flexibility.**
- **Breathing – Relaxed deep breathing (long slow exhalation followed by a short pause and then a passive inhalation followed a brief pause) facilitates relaxation and can therefore enhanced stretching, and is of particular value in developmental stretching.**

4. Developmental Stretching (Post-Workout)

- **Characterised by longer holds than in warm up stretching (two minutes plus).**
- **Should always be performed after a training session when body temperature is at its highest. Allow plenty of time to do your developmental stretching regime. Should be selective to the muscle groups that are tight in each individual.**
- **Post exercise stretching will overcome the shortening effects of exercise and is known to reduce post exercise muscle soreness.**
- **Always respect your tissues; never stretch into pain: only to the point of tension.**

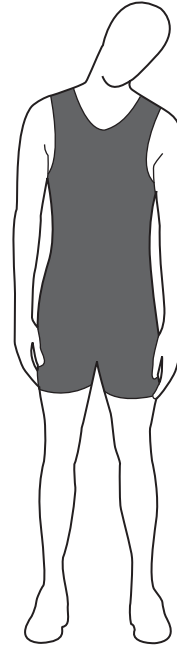
Warm up/Pre-exercise stretches should be held for 8 - 15 seconds and should be done 2 - 3 times.

Cool down/Post-exercise stretches should be held for 45 - 60 seconds and should be done 2 - 3 times.

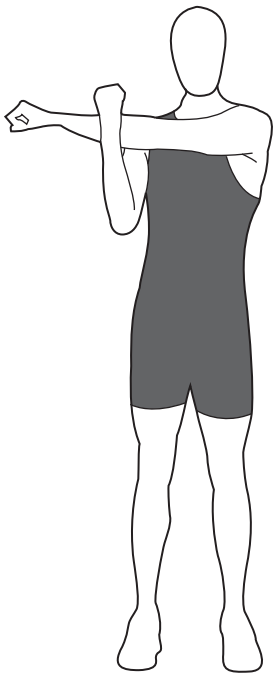
In a **Flexibility session** each stretch should last for 45 - 60 seconds and should be repeated 3 -5 times at least.



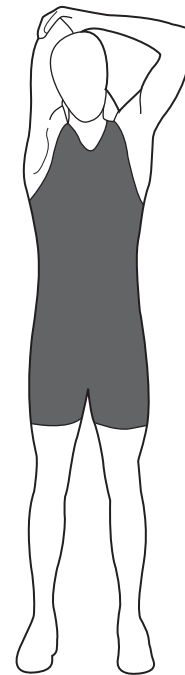
Neck Extensors - flex the chin to the chest.



Scalenes - facing forwards, bring the ear towards the shoulder taking care not to lift the shoulder.



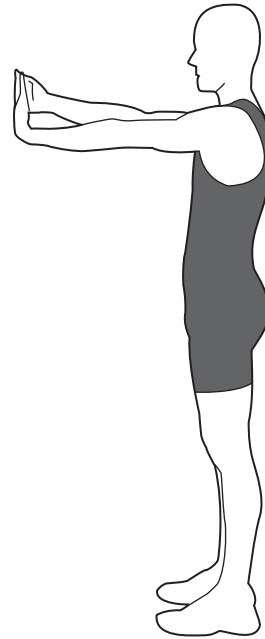
Deltoids - Reach across the front of the body, using the other arm to draw the arm across. Ensure that the shoulders are kept low.



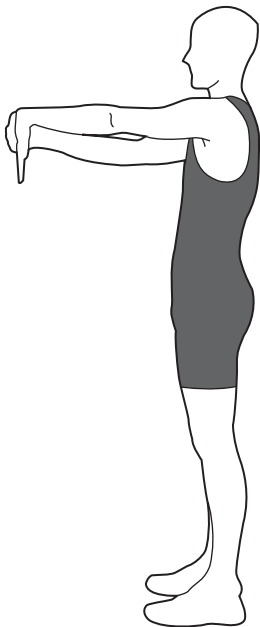
Triceps - place your right hand behind your neck. Use the left hand to apply pressure to the elbow, drawing the elbow behind the head. Ensure shoulders are relaxed.



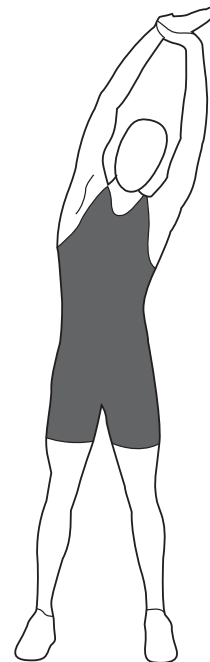
Pectorals/Biceps - Stretch both arms behind you, keeping the elbows straight and the thumbs pointing upwards. Ensure you do not bend forwards.



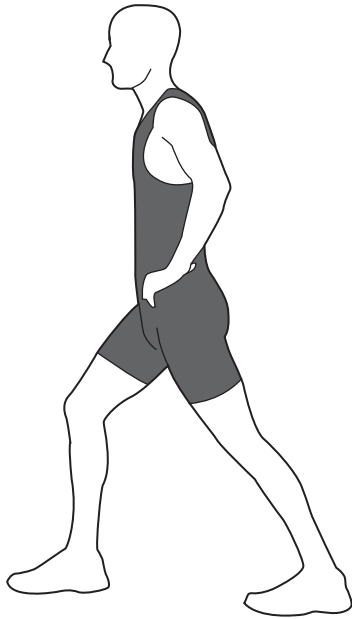
Wrist flexors - with the elbow straight use the left hand to apply the stretch by drawing the palm away from the floor, keeping the fingers straight



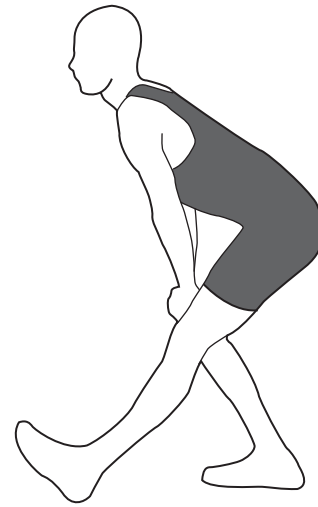
Wrist extensors - with the elbow straight use the left hand to apply the stretch by bending the wrist, bringing the palm towards the floor, keeping the fingers bent



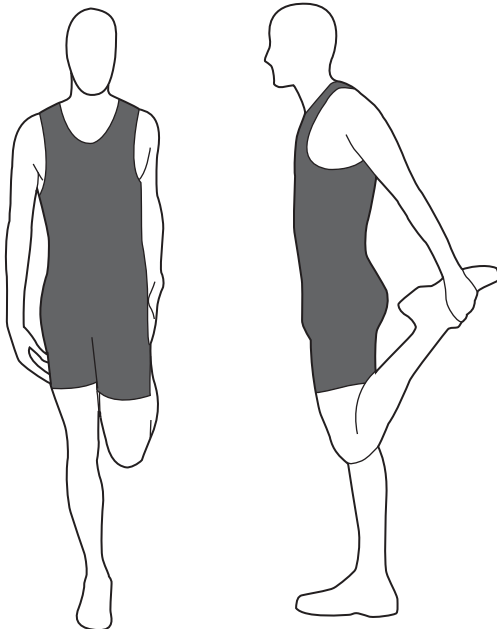
Trunk Stretch - with feet shoulder width apart, stretch right arm up towards the ceiling and over to the left, keeping the body in one plane.



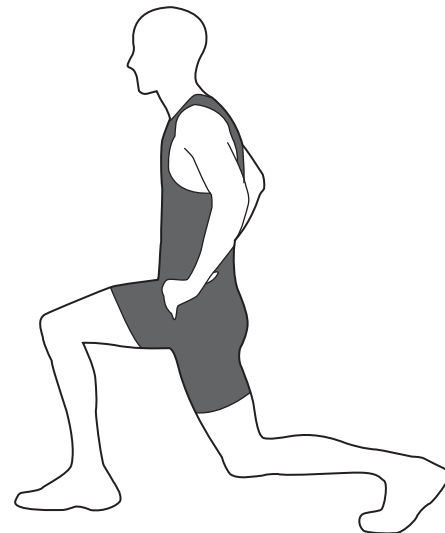
Gastrocnemius & Soleus - Stand astride, stretch forward over the front leg, keeping the knee over the foot. Keep the back knee straight, keep both heels in contact with the floor.



Hamstrings, Gastrocnemius & Soleus - stand astride with your front foot resting on your heel with toes pointing upwards. Stretch forward over the front leg bending your back knee keeping the heel on the floor. Use your arms to support your weight on your bent knee.



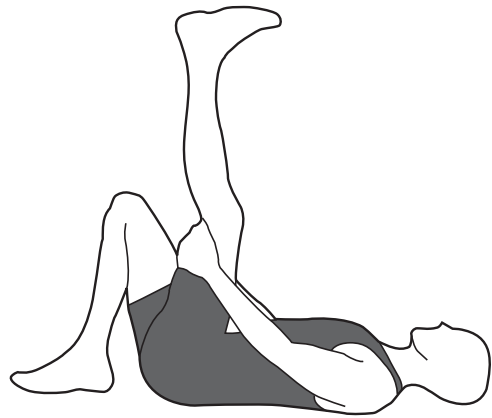
Quads - keeping your inner thighs and knees together push your right foot into your hand and push the hips forwards



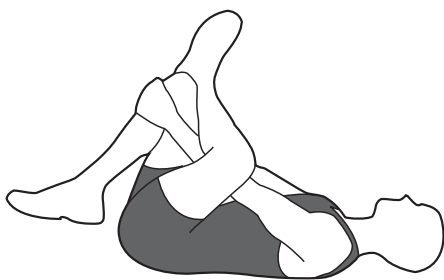
Hip Flexors Psoas/Quadriceps - stand astride, stretch forwards, dropping the right knee towards the floor, allowing the heel to raise. Keep the body upright.



Hamstrings - Sit on the floor, bend the left knee and slide heel towards the right inner thigh. Keep your back straight and flex from the hip, moving your torso towards the right thigh.



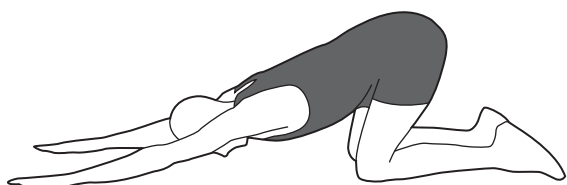
Hamstrings - lie flat on the floor, lift the right leg with the knee bent until the hip is at a right angle to your body. Holding around the thigh, gently straighten the leg until you feel the stretch. Left leg should be slightly bent.



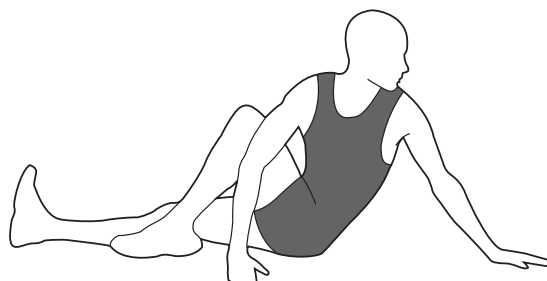
Glutes/Piriformis - Lie flat on your back with the left knee bent. Place the right heel on the left knee. Take hold around the left thigh and draw up towards your chest.



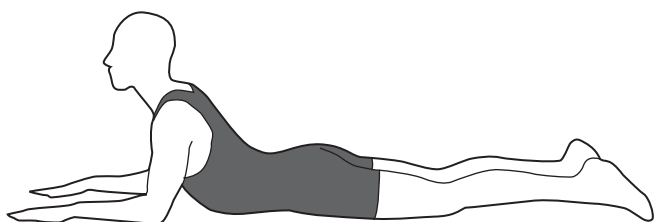
Erector Spinae - Lie on your back with knees bent; feet on the floor, grasp around your knees and pull your thighs towards your chest.



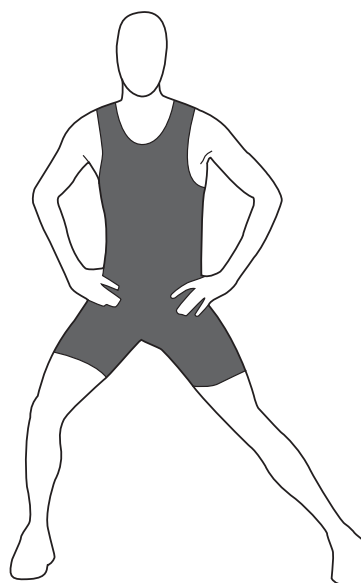
Rhomboids and Latissimus Dorsii - Kneel on all fours, arms straight in front and spread slightly apart. Lower your chest to the floor, keeping the pelvis still.



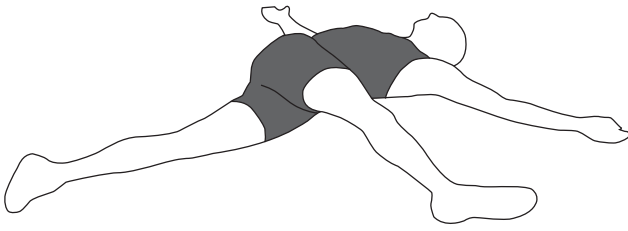
Piriformis, Buttock & Lateral Torso - sit upright on the floor, cross the right foot over the left and slide the heel of the right foot towards you. Tuck the right hand behind your hip. Place the left hand on the outside of the knee to apply the stretch. Turn your head to face the right shoulder.



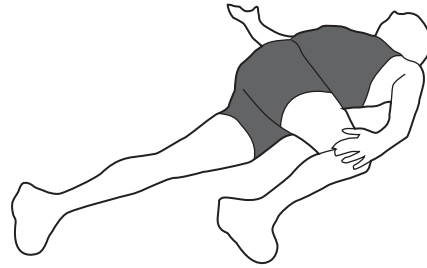
Rectus Abdominus - lie face down, place your hands under your shoulders, fingers pointing forwards. Straighten your arms gently until you feel resistance. Stretch your shoulders and chin forward.



Abductors - stand astride, feet facing forwards, keep the right leg straight, bend the left knee and stretch until the knee is over the left foot.



Pectorals, Obliques & Hamstrings - lie on your back with your arms out to the sides. Bend the right knee and move it to the left. Gently straighten the right knee until you reach the point of tension. Keep the head, shoulders and arms flat on the floor.



Pectorals, Obliques & Glutes - as previous stretch but grasp the right knee with the left hand and gently let it rotate across the body and onto the floor. Keep the head, shoulders and arms flat on the floor.

Par-Q Pre-Exercise Questionnaire

If you are planning to take part in physical activity or an exercise class and you are new to exercise, start by answering the questions below. If you are between the ages of 15 and 69 the questionnaire will tell you if you should check with a doctor before you start. If you are over 69 years of age, and you are not used to being very active, check with your doctor. All the information will be treated confidentially by the instructor.

- | | YES | NO |
|---|--------------------------|--------------------------|
| 1. Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by the doctor? | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Do you ever feel pain in your chest when you do physical activity? | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Have you ever had chest pain when you were not doing physical activity? | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Do you ever feel faint or have spells of dizziness? | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Do you have a joint problem that could be made worse by exercise? | <input type="checkbox"/> | <input type="checkbox"/> |
| 6. Have you ever been told that you have high blood pressure? | <input type="checkbox"/> | <input type="checkbox"/> |
| 7. Are you currently taking any medication of which the instructor should be made aware?
Details: | | |
| 8. Are you pregnant, or have you had a baby in the past 6 months? | <input type="checkbox"/> | <input type="checkbox"/> |
| 9. Do you know of any other reason why you should not participate in physical activity/exercise?
Details: | | |

If you have answered yes to one or more question:

Talk with your doctor by phone or in person before you start becoming much more physically active or before you have a fitness assessment. Tell your doctor about the questionnaire and to which question you answered yes.

You may be able to do any activity you want – as long as you start slowly and build up gradually. Or, you may need to restrict your activities to those which are safe for you. Talk with your doctor about the kinds of activities you wish to participate in and follow his/her advice.

If you have answered no to all questions:

You can be reasonably sure that you can start becoming more physically active and taking part in a suitable exercise programme. Begin slowly and build up gradually. This is the easiest way to go.

Delay becoming more active if:

You feel unwell because of a temporary illness such as a cold or a fever – wait till your better.

Please note: if your health changes so that subsequently you answer yes to any of the above questions, inform your fitness or health professional immediately. Ask whether you should change your physical activity or exercise plan.

I have read, understood and completed this questionnaire. All questions were answered to my full satisfaction.

Name: _____

Address: _____

Postcode: _____ Telephone: _____

Signature: _____ Date: _____

The Damper Lever and Drag Factor

The load on the Concept 2 Indoor Rower is unlike any other resistance training equipment as there is no pre-set load. What is measured is the ability of the user to accelerate the flywheel overcoming the frictional force of the air opposing the flywheel rotation. The monitor display of the flywheel is a numerical calculation using the acceleration, speed of rotation and moment of inertia.

The damper lever on the side of the fan cage controls the drag factor. With the damper set to level 10 more air can pass across the fan increasing the rate of deceleration (drag). The monitor detects the increase in drag and adjusts the pace readout.

The monitor displays the drag factor as a number starting at around 80-90 at level 1 up to around 220 at level 10 on a new machine.

HINT: If the perforations on the fan cage become clogged with dust, then to achieve the same drag factor the damper lever will need to be put on a higher setting.

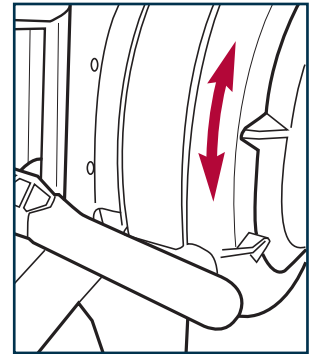
The monitor detects the movement of the flywheel, not the position of the damper lever, so different machines may require different lever settings to achieve the same drag factor reading. The drag factor reading itself, however, is consistent across all machines.

On-water rowers tend to set the drag in the range 120 to 140 (level 3 to 4 on a new machine) since it is at this level that the feel is closest to that of a racing boat, making the training rowing specific. Non-rowers using the machine for cross training, or as a sport in its own right, may benefit from a damper setting outside of this range.

HINT: New users often choose a higher drag setting as default, however it is worth noting that many world records are set using the 120-140 drag factor range - meaning that it should be perfectly adequate for most of us.

As a general rule, older and stronger users wishing to undertake specific power or strength training may tend towards levels 8-10 while smaller, lighter and younger users would benefit from the lower settings. Juniors aged 18 and lower should use level 3 and lower.

It is a question of trial and error to find the most suitable setting for each individual. Once you have found your ideal set up, note the drag factor on the monitor as this will remain constant across different machines; rather than the damper lever setting which can vary from machine to machine.



Guideline Drag Factor Settings

Good rowing technique is about the speed of application of power, and not simply brute strength.

International rowers train and test with the drag factor setting at a level of resistance that enables them to replicate their rhythm and rate from the water. The table below illustrates the settings recommended by the Amateur Rowing Association for juniors, and those in the Great Britain international rowing teams for testing and training.

Guideline Drag Factor Settings

Junior ages	School year	Drag Factor
J11/12/Beginner	5 & 6	95-105 approx
J12/13	7 & 8	105-115
J13/14	9 & 10	110-120
J14/15	10 & 11	115-125
Junior Women	12 & 13	125-135
Junior Men	12 & 13	130-140

Note: Please bear in mind that children develop and mature physically at different rates and that you should take this into account when setting drag and designing an exercise regime for them.

Adults - World Class Athletes

Lightweight women (performance athletes)	125
Heavyweight women (performance athletes)	130
Lightweight men (performance athletes)	135
Heavyweight men (performance athletes)	140

Note: These figures are those recommended for world-class athletes and are shown here only as a guide. You may wish to consider lower settings than these to get the most from your indoor rowing.

Training Bands

Band	Type of Work	% MHR	Rate (SMP)	What is it good for?	How You Feel
UT2	Utilisation 2. Light aerobic, low intensity work. Sustainable and fat burning.	55-70	18-20	General CV Fitness	Relaxed. Able to carry on a conversation
UT1	Utilisation 1. Heavy aerobic work using more oxygen.	70-80	20-24	Higher level CV Fitness	Working. Feel warmer. Heart rate and respiration up. May Sweat
AT	Anaerobic Threshold. Harder work. On the aerobic limit. Pushing into anaerobic area.	80-85	28-32	High level CV Fitness.. Building mental & physical tolerance	Hard work. Heart rate and respiration up. Carbon dioxide build up. Sweating & breathing hard.
TR	Oxygen Transportation. Working hard. Unsustainable for long periods.	85-95	28-32	Developing oxygen transport to the muscles under stress.	Stressed. Panting. Sweating freely.
AN	Anaerobic (without oxygen). Short bursts of maximum effort. Unsustainable. Burning carbohydrates.	95-100	32+	Anaerobic work.	Very stressful. Gasping. Sweating heavily.

Notes

SPM = strokes per minute

% MHR = percentage of maximum heart rate

CV = cardiovascular

500m Split-Time to Watts Conversion

It is possible to convert your pace on the indoor rower into power and vice-versa. Pace is measured as time per 500m and power is measured in Watts.

There are two way you can do this.

1. Use the following equations:

$$\text{Power (Watts)} = \frac{2.8}{(\text{Pace})^3}$$

Where pace is given as:

$$\text{Pace} = \frac{\text{Time (seconds)}}{\text{Distance (metres)}}$$

2. Refer to the table below

Concept2 Conversion Table

500m Split-Time / Watts

500m	4:01.0	3:11.3	2:47.1	2:31.8	2:20.9	2:12.6	2:06.0	2:00.5
Watts	25	50	75	100	125	150	175	200
500m	1:55.9	1:51.9	1:48.4	1:45.3	1:42.5	1:40.0	1:37.7	1:35.6
Watts	225	250	275	300	325	350	375	400
500m	1:33.7	1:32.0	1:30.3	1:28.8	1:27.4	1:26.0	1:24.7	1:23.6
Watts	425	450	475	500	525	550	575	600

Pace Guide

This guide shows you your finishing time, at a given average pace, for a variety of different workouts.

1,609m = 1 Mile

21,097m = 1/2 Marathon

42,195m = Full Marathon

500m	1,609m	2,000m	5,000m	10,000m	21,097m	42,195m	100,000m
1:10	3:45	4:40	11:40	23:20	0:49:14	1:38:27	3:53:20
1:12	3:52	4:48	12:00	24:00	0:50:38	1:41:16	4:00:00
1:14	3:58	4:56	12:20	24:40	0:52:02	1:44:05	4:06:40
1:16	4:05	5:04	12:40	25:20	0:53:27	1:46:54	4:13:20
1:18	4:11	5:12	13:00	26:00	0:54:51	1:49:42	4:20:00
1:20	4:17	5:20	13:20	26:40	0:56:16	1:52:31	4:26:40
1:22	4:24	5:28	13:40	27:20	0:57:40	1:55:20	4:33:20
1:24	4:30	5:36	14:00	28:00	0:59:04	1:58:09	4:40:00
1:26	4:37	5:44	14:20	28:40	1:00:29	2:00:58	4:46:40
1:28	4:43	5:52	14:40	29:20	1:01:53	2:03:46	4:53:20
1:30	4:50	6:00	15:00	30:00	1:03:18	2:06:35	5:00:00
1:32	4:56	6:08	15:20	30:40	1:04:42	2:09:24	5:06:40
1:34	5:02	6:16	15:40	31:20	1:06:06	2:12:13	5:13:20
1:36	5:09	6:24	16:00	32:00	1:07:31	2:15:01	5:20:00
1:38	5:15	6:32	16:20	32:40	1:08:55	2:17:50	5:26:40
1:40	5:22	6:40	16:40	33:20	1:10:20	2:20:39	5:33:20
1:42	5:28	6:48	17:00	34:00	1:11:44	2:23:28	5:40:00
1:44	5:35	6:56	17:20	34:40	1:13:08	2:26:17	5:46:40
1:46	5:41	7:04	17:40	35:20	1:14:33	2:29:05	5:53:20
1:48	5:48	7:12	18:00	36:00	1:15:57	2:31:54	6:00:00
1:50	5:54	7:20	18:20	36:40	1:17:22	2:34:43	6:06:40
1:52	6:00	7:28	18:40	37:20	1:18:46	2:37:32	6:13:20
1:54	6:07	7:36	19:00	38:00	1:20:10	2:40:20	6:20:00
1:56	6:13	7:44	19:20	38:40	1:21:35	2:43:09	6:26:40
1:58	6:20	7:52	19:40	39:20	1:22:59	2:45:58	6:33:20
2:00	6:26	8:00	20:00	40:00	1:24:24	2:48:47	6:40:00
2:02	6:33	8:08	20:20	40:40	1:25:48	2:51:36	6:46:40
2:04	6:39	8:16	20:40	41:20	1:27:12	2:54:24	6:53:20
2:06	6:45	8:24	21:00	42:00	1:28:37	2:57:13	7:00:00
2:08	6:52	8:32	21:20	42:40	1:30:01	3:00:02	7:06:40
2:10	6:58	8:40	21:40	43:20	1:31:25	3:02:51	7:13:20
2:12	7:05	8:48	22:00	44:00	1:32:50	3:05:39	7:20:00
2:14	7:11	8:56	22:20	44:40	1:34:14	3:08:28	7:26:40
2:16	7:18	9:04	22:40	45:20	1:35:39	3:11:17	7:33:20
2:18	7:24	9:12	23:00	46:00	1:37:03	3:14:06	7:40:00
2:20	7:31	9:20	23:20	46:40	1:38:27	3:16:55	7:46:40
2:22	7:37	9:28	23:40	47:20	1:39:52	3:19:43	7:53:20
2:24	7:43	9:36	24:00	48:00	1:41:16	3:22:32	8:00:00
2:26	7:50	9:44	24:20	48:40	1:42:41	3:25:21	8:06:40
2:28	7:56	9:52	24:40	49:20	1:44:05	3:28:10	8:13:20
2:30	8:03	10:00	25:00	50:00	1:45:29	3:30:59	8:20:00
2:32	8:09	10:08	25:20	50:40	1:46:54	3:33:47	8:26:40
2:34	8:16	10:16	25:40	51:20	1:48:18	3:36:36	8:33:20
2:36	8:22	10:24	26:00	52:00	1:49:43	3:39:25	8:40:00
2:38	8:28	10:32	26:20	52:40	1:51:07	3:42:14	8:46:40
2:40	8:35	10:40	26:40	53:20	1:52:31	3:45:02	8:53:20
2:42	8:41	10:48	27:00	54:00	1:53:56	3:47:51	9:00:00
2:44	8:48	10:56	27:20	54:40	1:55:20	3:50:40	9:06:40
2:46	8:54	11:04	27:40	55:20	1:56:45	3:53:29	9:13:20
2:48	9:01	11:12	28:00	56:00	1:58:09	3:56:18	9:20:00
2:50	9:07	11:20	28:20	56:40	1:59:33	3:59:06	9:26:40
2:52	9:13	11:28	28:40	57:20	2:00:58	4:01:55	9:33:20
2:54	9:20	11:36	29:00	58:00	2:02:22	4:04:44	9:40:00
2:56	9:26	11:44	29:20	58:40	2:03:46	4:07:33	9:46:40
2:58	9:33	11:52	29:40	59:20	2:05:11	4:10:21	9:53:20
3:00	9:39	12:00	30:00	60:00	2:06:35	4:13:10	10:00:00

Weight Adjustment Factor

Your results on the Indoor Rower depend on the power output you maintain for the distance or time required. Larger heavier people are often able to maintain a higher level of power output due to their increased height and weight.

The equation below enables you to compare time or distance between people of different weights.

$$\text{Weight Adjustment Factor} = \left[\frac{\text{weight}}{77.27} \right]^{\frac{2}{9}}$$

Using the Weight Adjustment Factor

For timed pieces: Corrected time = actual time x WAF

For distance pieces: Corrected distance = actual distance/WAF

Weight Adjustment Factors

Weight	Factor	Weight	Factor	Weight	Factor	Weight	Factor
50.0 kgs	0.908	67.5 kgs	0.971	82.5 kgs	1.015	97.5 kgs	1.053
52.5 kgs	0.918	70.0 kgs	0.979	85.0 kgs	1.022	100.0 kgs	1.059
57.5 kgs	0.937	72.5 kgs	0.987	87.5 kgs	1.028	102.5 kgs	1.065
60.5 kgs	0.946	75.0 kgs	0.994	90.0 kgs	1.035	105.0 kgs	1.071
62.5 kgs	0.954	77.5 kgs	1.001	92.5 kgs	1.041	107.5 kgs	1.076
65.0 kgs	0.963	80.0 kgs	1.008	95.0 kgs	1.047	110.0 kgs	1.082

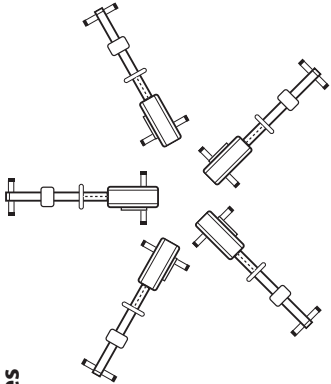
Year 7 Lesson Unit of Work

Technique Objectives	ICT Objectives	Resources	Challenges
<p>Pupils understand & practice good technique:</p> <p>Order of the stroke:</p> <ul style="list-style-type: none"> • The arm movement • The body swing • The compression of the legs <p>Phases of the stroke:</p> <ul style="list-style-type: none"> • The Finish • The Catch • The Drive • The Recovery <p>Length of stroke</p> <ul style="list-style-type: none"> • Arms Only • Arms and Body Swing • Full Slide <p>Rhythm & Ratio - 2 : 1 or 3 : 1</p> <p>Muscle groups used when exercising on the Indoor Rower.</p>	<p>Pupils know & are able to:</p> <ul style="list-style-type: none"> • Set and record the distance of a row • Set and record the time of a row • Determine & manage 'strokes per minute' (S/M) • Understand the meaning of /500m split • View intensity - Ave /500m • Check the drag factor • Set the pace boat • Use the memory on the monitor 	<p>Pupils experience:</p> <ul style="list-style-type: none"> • The Traffic Light System (Lesson & Equipment Rules) • Stroke Cycle Reference Sheet • The Name Game (Equipment) • TechniRow (Technique) • Drag Factor explanation • iRate (SPM/Ratio/Technique) • Distance Recording Sheet <p>N.B: Recording sheets are provided with each lesson</p>	<p>Pupils complete:</p> <ul style="list-style-type: none"> • A 2min row at the beginning and end of the unit. Compare the distance achieved in the two rows to the BIRC results on the Concept 2 website • A Frantic Relay • A Distance Recording Sheet - row 25,000m to receive the first Distance Award from Concept2 • A round in the Concept2 Schools Indoor Rowing League • A 250m iRate pace boat challenge • A Year 7 rankings board

Year 7 Lesson 1

Aim: to introduce pupils to the NEW SPORT of Indoor Rowing	
<p>Technique Objectives</p> <ul style="list-style-type: none"> • Become familiar with the names of the parts of the Indoor Rowing Machine • Become familiar with indoor rowing terminology • Understand & practice good technique <p>The length of the stroke</p> <ul style="list-style-type: none"> • Arms only • Arms and body swing • Full slide <p>The basic muscles and areas of the body that are used when exercising on the Indoor Rowing Machine</p>	<p>Resources</p> <ul style="list-style-type: none"> • The Traffic Light System (Lesson & Equipment Rules) • TechniRow (Technique) • The Name Game (Equipment) • Muscles Used in Rowing Sheets • Stroke Cycle Reference Sheets • BIRC Results for Year 7
<p>ICT Objectives</p> <ul style="list-style-type: none"> • Set and record the distance of a row • Set and record the time of a row 	<p>Challenges</p> <ul style="list-style-type: none"> • A 2min row. Compare the distance achieved to the BIRC results on the Concept2 website • Distance recording sheet.
<p>National Curriculum Programme of Study: (Athletic Activities: 5e) 1a, 2a, 2c, 3a, 3b, 4a, 10a</p>	

Year 7 Lesson 1

Pupil Activities	Teacher Notes
<p>Set up of machines</p> 	<p>Set the rowing machines up in a star formation. Damper level on all Indoor Rowers to be 1. Do not alter the damper settings and do not discuss with pupils – this will be covered in Lesson 2</p>
<p>Warm up Activity: The Name Game (in teams)</p>	<p>Use Traffic Light system to establish rules for Indoor Rowing Lessons. Lead pupils in completing the Name Game as described over leaf. Involve lots of cardiovascular activity. Stretch.</p>
<p>TechniRow (Task 1) Work through TechniRow Task Sheet - Task 1 only. In pairs, 3 pairs per machine. Non-rowers take on the role of rowing coach, distance recorder, etc.</p>	<p>Lead pupils in completing Task 1 on the TechniRow Task Sheet. For each turn the pupils take, teacher demonstrates arms only, arms and body swing and arms, body swing and legs. Use Concept2 Technique DVD to support teacher knowledge.</p>
<p>TechniRow (Task 2) Work through TechniRow Task Sheet – Task 2 only.</p>	<p>Pupils complete Task 2 Give pupils blank muscles used in rowing sheet. Can they colour on the muscles used for each of the three attempts they have? Using this information can pupils explain why full slide gives the best score? Allow pupils practice time on the rowing machine to experiment with the muscle groups that they are using at different points in the stroke. Lead class discussion.</p>

continued 

<p>TechniRow (Task 3) Work through TechniRow Handout – Task 3 only.</p>	<p>Pupils should follow the instructions for Task 3. Hand out the Distance Recording Sheet. Pupils should calculate their total distance for the lesson by adding all distances from the TechniRow sheet</p>
<p>2 Minute Individual/Team Challenge In teams. Rower 1 set the monitor for a two minute row and complete using best technique to achieve the furthest distance for themselves and their team. Record distance on the Distance recording sheet Complete the above for each of the rowers in the team and then calculate a whole team distance for the task. Compare your individual results to the latest British Indoor Rowing Championship Results.</p>	<p>This is both an 'individual' and a 'team' achievement task. Teacher sets number of rowers per team. Teacher creates a team results table on a whiteboard. After each rower has completed their 2 minute row they add their distance to the team total on the board.</p>

Traffic Light System

Red Light - Before you get on the machine

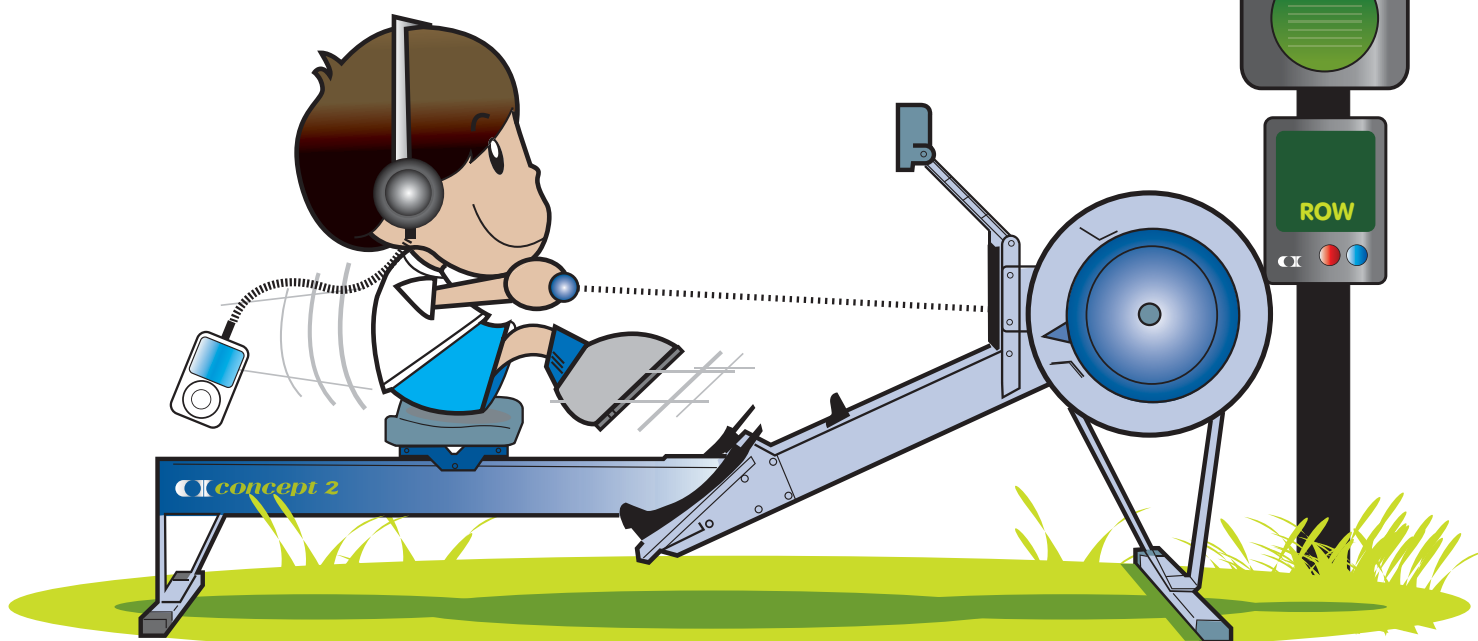
- Check that the handle, seat and monorail are clean and free from dirt, sweat and dust.
- Adjust the damper setting.
- Make sure that the foot strap goes over the crease in your shoes.
- If you have long hair make sure that it is tied back away from your face.
- Make sure that your t-shirt is tucked in.
- Make sure that the monitor is at eye height so that you can see it easily.
- If you are not sure about technique ask your teacher first.

Amber Light - While you are rowing

- Sit slightly towards the back of the seat.
- Hold the handle with both hands.
- Do not twist the chain.
- Always keep hold of the handle.
- Make sure that your clothing has not come loose and might get stuck in the monorail.

Green Light - After you have finished

- Replace the handle in the handle hook.
- Wipe down the seat, handle and monorail.



The Name Game.

Method

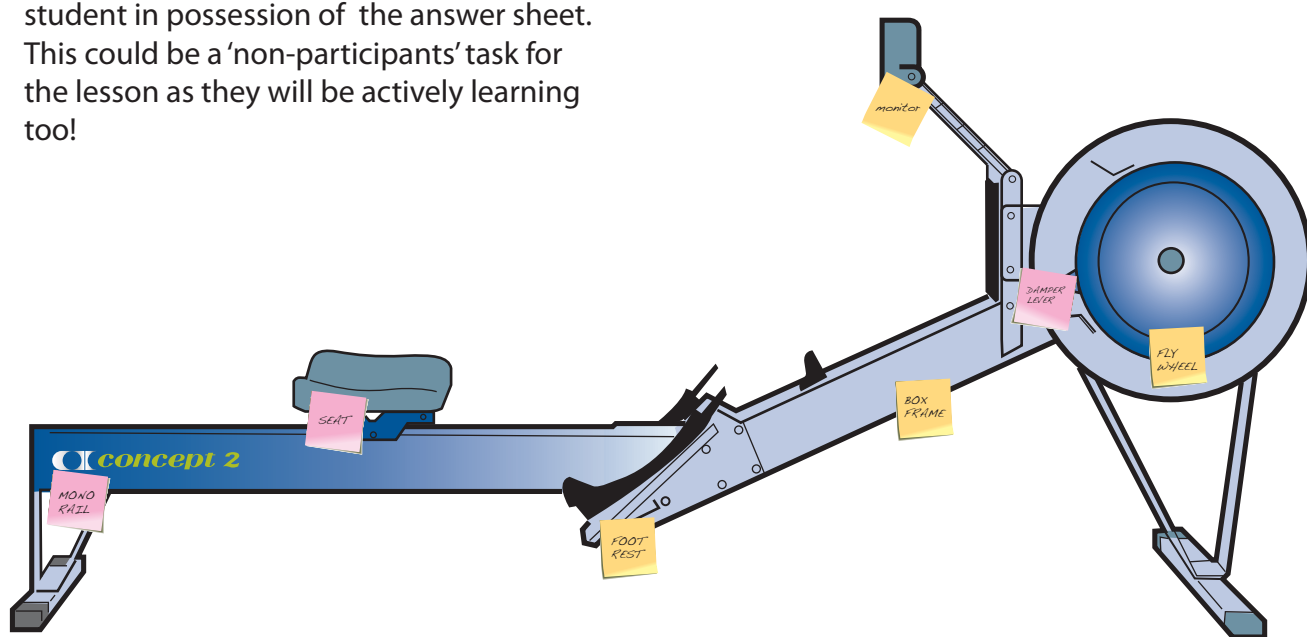
1. Students are given an envelope with labels in. Each label matches a part of the rowing machine.
2. Teams/Individuals are then given a designated amount of time to run to the machine and stick the labels to the machine in the correct positions e.g. 1 minute.
3. At the end of that time a score is given which tells them how many answers they have correct.
4. Repeat as necessary until the students have become familiar with the machine and it's parts.

Teaching points

1. Try working from a 'no information' basis and allow the students to work the machine parts out for themselves using common sense and the process of elimination, this is not rocket science!
2. Build this activity into a 'warm up' rather than assigning it as a task in it's own right. Add a running or stretching activity to the front end of this task.
3. At various points during an indoor rowing lesson students can be picked out and handed the envelope of labels and assessed in this task, perhaps even by another student in possession of the answer sheet. This could be a 'non-participants' task for the lesson as they will be actively learning too!

Organisation

This task can be organised in teams which adds a little more excitement & can be less daunting for the first attempts.





Flywheel

Fan Cage

Chain

Monitor

**Handle
Hook**

**Damper
Lever**

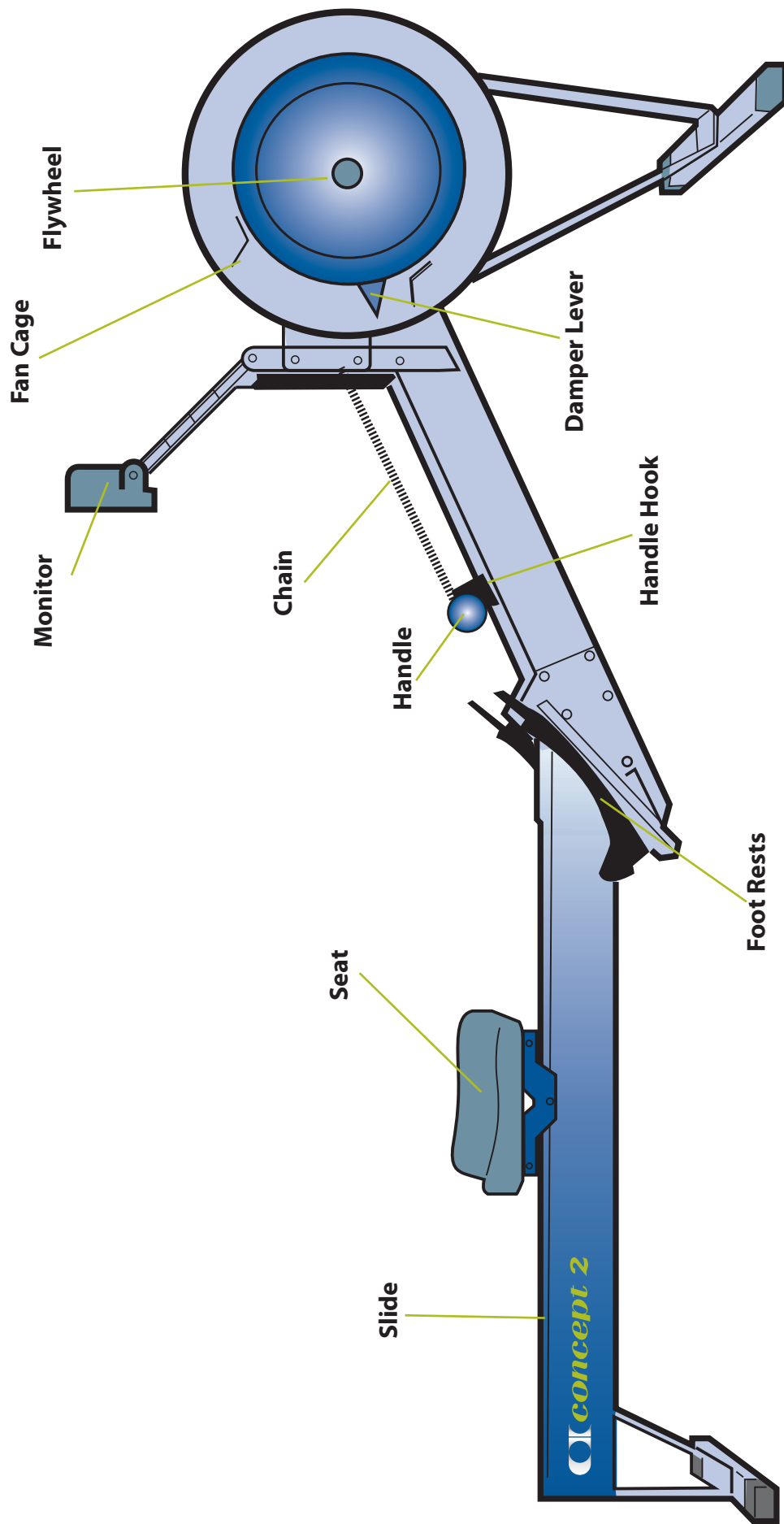
Slide

Handle

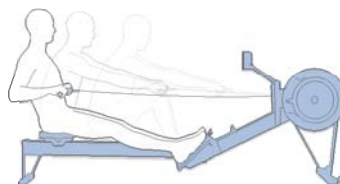
Seat

Foot Rests

Parts of the Indoor Rower



TechniRow



Task 1

You are both going to have **3 turns** on the indoor rowing machine. For each turn, before you get on the machine your teacher will show you how you must row. Watch and follow the instructions carefully. **On each turn you will pull 15 strokes.** Record your arms only score in box 1, record your arms and body swing score in box 2 and your arms, body swing and legs score in box 4.

Name	Arms Only	Arms & Body Swing	Metres Difference	Arms, Body Swing & Legs	Metres Difference
	1	2	3	4	5
	1	2	3	4	5

Task 2

Calculate how many more metres you were able to row using arms and body swing in comparison to using just your arms only. Write your answer in box 3. Work out how much further you were able to row when you used your arms, body swing and legs than you did when you just used your arms and body swing? Write your answer in box 5.

Task 3

Have another attempt at completing Task 1 and use the table below to put your scores into, **BUT THIS TIME see if you can beat all of the scores that you got last time!**

Remember PERFECT PRACTICE MAKES PERFECT.

Name	Arms Only	Arms & Body Swing	Metres Difference	Arms, Body Swing & Legs	Metres Difference
	1	2	3	4	5
	1	2	3	4	5



TechniRow - Teachers Notes

Method:

- As described on the student task sheet

Teaching points:

- Use this task before even showing them the technique video as it will allow the pupils to 'feel' their own way around using an indoor rowing machine first.
- The Detailed Stroke Cycle and Concept2 Technique DVD are both useful for this task.
- Do not 'bombard' rowers with too much technical information. Aim to give student observers a couple of points of 'good' technique to watch out for e.g. on the 'arms only' phase, tell students to sit tall & imagine that you are balancing a glass of water on the top of your head!

Variations:

- Rather than asking the students to row a set number of strokes you could limit the row to 75m ask the pupils to count the strokes used - the end product is the same. In each case the students should find that the introduction of the legs provides the greatest bodily contribution to the stroke.
- You can also introduce the concept of $\frac{1}{4}$, $\frac{1}{2}$ & $\frac{3}{4}$ slide before you allow the students to use a full slide. This reinforces the power in the legs.

Extension Challenge:

- Using time as the limiting factor, ask the students to row arms only for 30 seconds, record their distance. Now row arms & body swing for 20 seconds. Can they beat the arms only score? Now row arms, legs & body swing for 15 seconds. Can they beat the distance which they rowed for arms & body swing? This task highlights further the importance of the various body parts in the completion of the whole stroke & the fact that you need to row for less time to achieve the same kinds of distances, provided that you are using arms, body & legs together effectively!

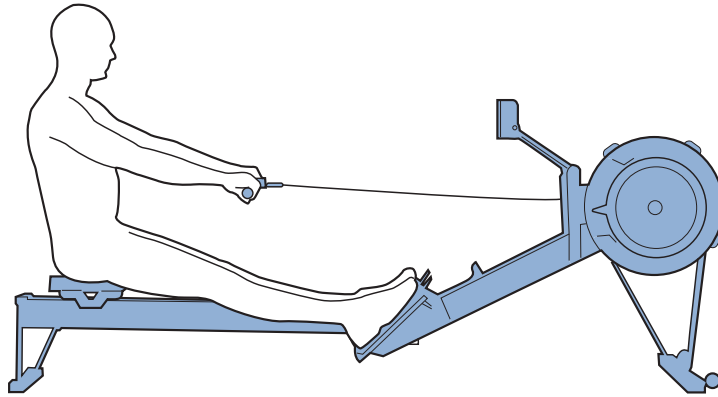
Trouble Shooting – correct the following poor technique

Do not allow:

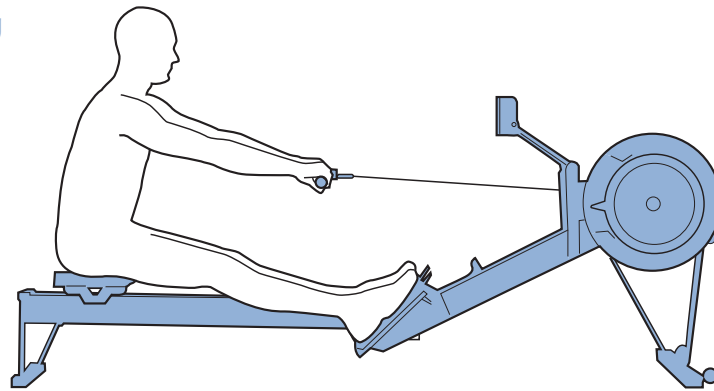
- Long 'lie backs' with the body
- Rounded backs
- Short strokes or bent arm pull
- Rolling of the wrists
- Lifting the handle over the knees, it is important that the knees are raised & released at the correct time to allow the arms passage in a straight line

Muscles Used in Rowing

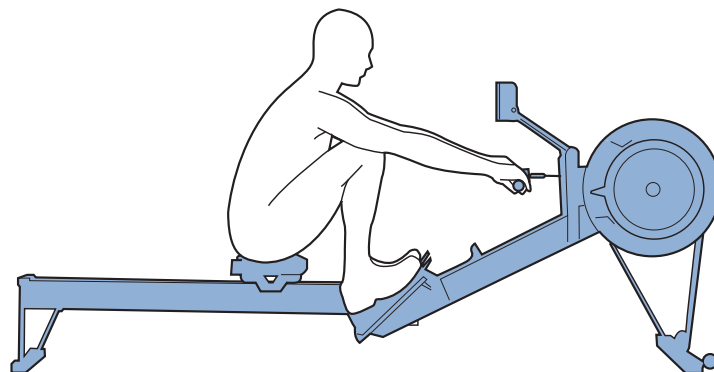
Arms Only



Arms and Body Swing

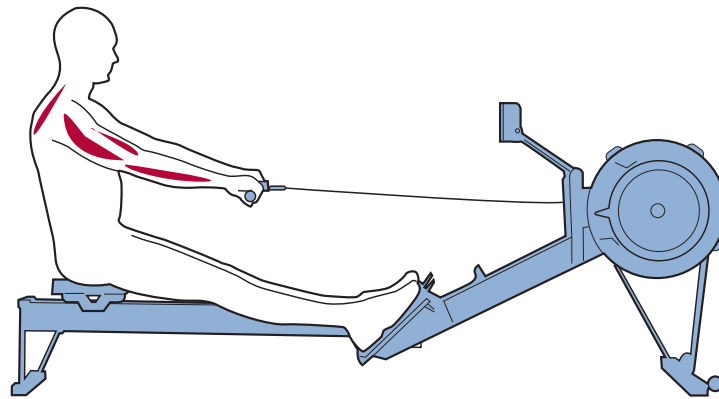


Full Slide

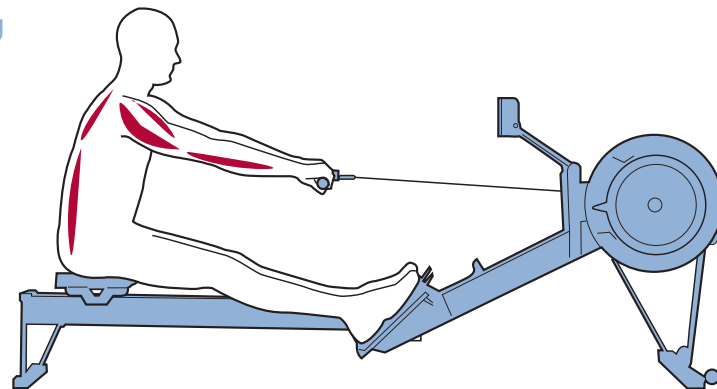


Muscles Used in Rowing

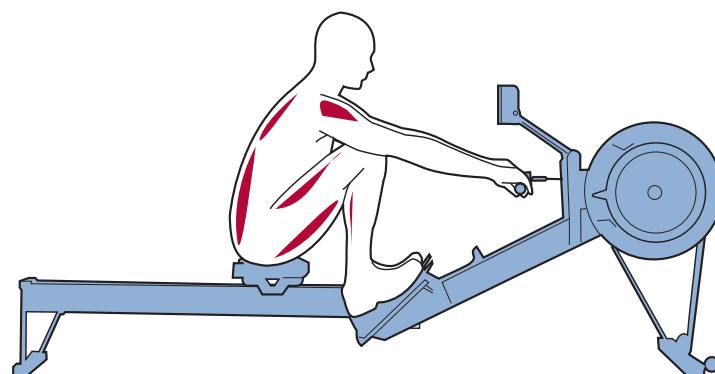
Arms Only

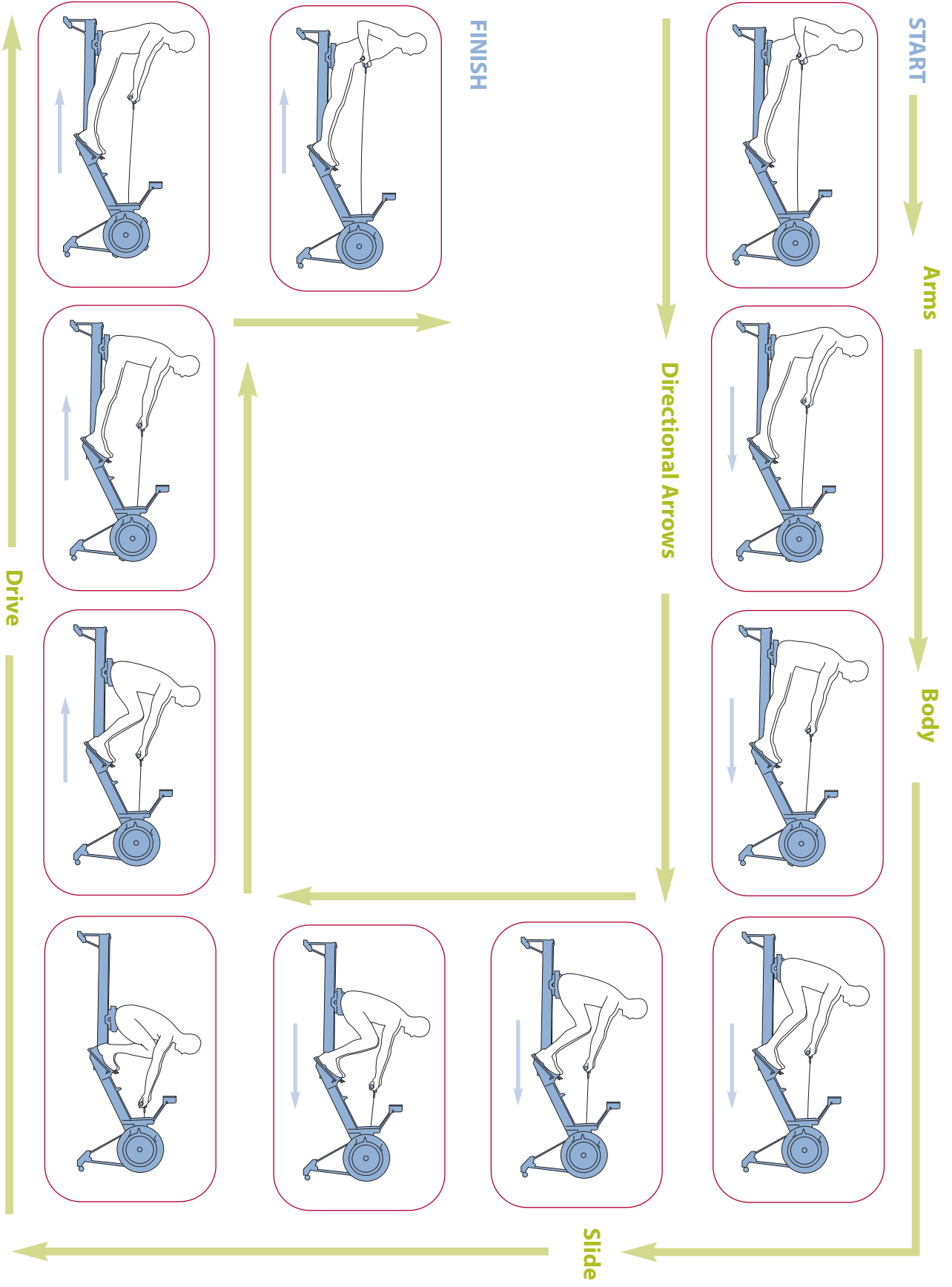


Arms and Body Swing



Full Slide





Distance Recording Sheet

Race Results

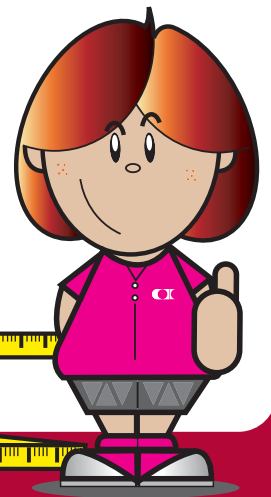
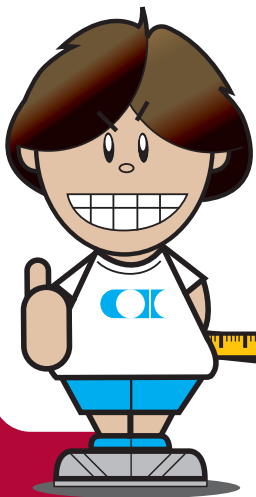
Date	Length of Row	Result

Total Metres Rowed

Date	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6	Total

Name Of Rower

.....



Year 7 Boys British Indoor Championship Results 2007



Pos.	Name	Age	Club	Distance
1	Dominic Parnell	12	Newark RC	533
2	Max Hayes	12	London	520
3	Joseph Makururu	12	Nottingham City Schs Rowing	497
4	Cameron Manucheri	11	Kings Norton Boys Sch	493
5	Isaac Greenwy Tambini	11	Trinity Sch	492
6	Patrick Sullivan	11	Bidford FC	490
7	Samuel Bloor	12	Stoke RA	488
8	Christopher Howarth	12	Nottingham City Schs Rowing	487
9	Sean Hoare	11	Colmers Sch IRC	478
10	Marcus Barrow	11	Colmers Sch IRC	475
11	David Padbury	11	Leicester RC	472
12	Harley Coxill	11	Stoke RA	457
=13	Joseph Taylor	11	Evesham RC	454
=13	Josh Dunbar	12	Nottingham City Schs Rowing	454
15	Ben Warner	11	Trinity Sch	451
16	Dylan Sutton	11	Stoke RA	448
17	Ross Porter	11	Maidstone	444
18	Thor Thompson	11	Kings Norton Boys Sch	441
19	Steven Sweet	11	Colmers Sch IRC	440
=20	Jacob Whitby	11	Stoke RA	435
=20	Jack Stratton	11	Oundle Town RC	435
22	Amir Poursafaie	11	Colmers Sch IRC	425
23	Jack Angus	11	St Marys Sch	411
24	Dominic Whittington	11	Central IRC	394
25	Billy Skinner	11	Central IRC	388
26	Harry Gresham	11	Central IRC	362

Year 7 Girls British Indoor Championship Results 2007



Pos.	Name	Age	Club	Distance
1	KatieMetalli	11	Team Kennet/St Bartholomew's Sch	522
2	Imogen Sherry	12	Grange Sch RC	507
3	Eleanor Grindle	12	Ross Junior Rowing Academy	497
4	Amy Surman	11	Ross Junior Rowing Academy	494
5	Sasha Quarrington	11	Eton Excelsior	490
6	Becky Rouncefield	11	Peterborough	486
7	Rowena Price	11	Newark RC	485
8	Sadie Bryan	12	Evesham RC	480
=9	Sreejoyee Roychowdhury	12	Peterborough City RC	478
=9	Lottie Wynn	12	Bruton Sch for Girls	478
11	Emily Beaumont	12	Maidenhead RC	474
12	Emma Avery	12	Colmers Sch IRC	470
=13	Charlotte Bromfield	12	Nottingham City Schs Rowing	464
=13	Philippa Brown	11	Wrekin Rowers	464
=15	Rosie McMahon	11	Bruton Sch for Girls	460
=15	Jade Beaton	11	Bruton Sch for Girls	460
17	Beatrice Barclay	11	Windlesham House Sch	458
18	Poppy Burgess	12	Bishop Heber High Sch	453
19	Harriet Mace	11	Tees	449
20	Lucy Thorn	11	Eton Excelsior	441
21	Ashleigh Martin	12	Nottingham City Schs Rowing	438
22	Zoe Sarjant	11	Ross Junior Rowing Academy	435
=23	Jodie Glover	11	Colmers Sch IRC	428
=23	Kirsty Mitchell	11	Colmers Sch IRC	428
25	Che Dowell	11	Nottingham City Schs Rowing	417
26	Emily Reece	11	Colmers Sch IRC	402
27	Rachel Davis	11	Stoke RA	386
28	Laura Hawkeswood	11	Colmers Sch IRC	377
29	Emily Penman	11	Ross Junior Rowing Academy	376
30	Rebecca Finch		Bruton Sch for Girls	448

Year 7 Lesson 2

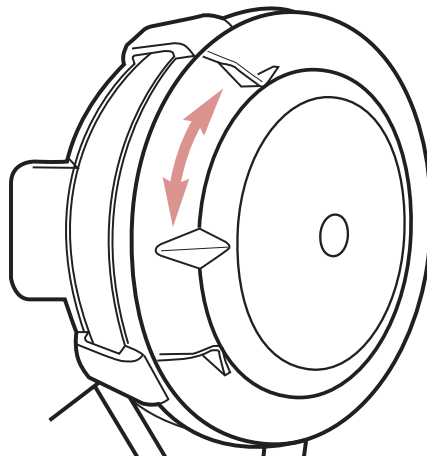
Aim: How to CREATE RESISTANCE on an Indoor Rowing Machine	
<p>Technique Objectives</p> <ul style="list-style-type: none"> • Become familiar with the names of the parts of the Indoor Rower • Become familiar with indoor rowing terminology • Understand & practice good technique • Understand Drag Factor and Damper Lever Resistance 	<p>Resources</p> <ul style="list-style-type: none"> • The Traffic Light System (Lesson & Equipment Rules) • The Name Game (Equipment) • Drag Factor Explanation Sheet
<p>ICT Objectives</p> <ul style="list-style-type: none"> • Set and record the distance of a row • Set and record the time of a row 	<p>Challenges</p> <ul style="list-style-type: none"> • Distance recording sheets
<p>National Curriculum Programme of Study: (Athletic Activities: 5e) 1a, 2c, 3b, 4a, 4c, 10a</p>	

Year 7 Lesson 2

Pupil Activities	Teacher Notes
<p>Warm up Activity: The Name Game</p>	<p>Lead pupils in completing a variation of the Name Game as described in the Name Game Teachers Notes. This task should involve lots of cardiovascular activity. e.g. using skipping ropes. Stretch.</p>
<p>Introductory Activity: Discovering Drag Factor (Task 1)</p> <p>In pairs. Pupils complete fitness circuit and record results.</p>	<p>Set the area up into a fitness circuit with one station per pair of pupils, 3 consecutive stations should be Indoor Rowing, with damper levers set to 1, 4 and 7. The remaining stations should alternate arms, legs and abdominal activities.</p> <p>Pupils complete the circuit recording the activity name and number of repetitions that they achieve at each station. On the rowing stations pupils must set the monitor to just row and record the distance that they achieve in metres.</p> <p>Once one circuit has been completed lead a group discussion to establish which Indoor Rower provides the most resistance, some resistance and the least resistance. Pupils should then look at the Indoor Rowers and see if they can tell from the set up of the machine which part controls the resistance.</p> <p>Once they have established that the damper lever controls the resistance introduce pupils to checking the Drag Factor.</p> <p>Show pupils how to check the Drag Factor and explain the importance of this. See the Setting the Drag Factor Teachers Notes.</p>
<p>Learning to set Drag Factor (Task 2)</p> <p>Pupils spend ten minutes in groups checking and altering Drag Factor on a given machine. Pupils complete fitness circuit and record results.</p>	<p>All your Indoor Rowers are now added into the circuit. Assign each machine a drag factor of your choice between 90 and 130 (use labels provided). When the rowers arrive at an Indoor Rowing station they must;</p> <ul style="list-style-type: none"> • check the current drag factor • alter the damper lever until the prescribed drag factor is achieved • record on their sheet where the damper lever needed to be set • return the damper lever to 1. <p>N.B. No prolonged rowing will take place in this circuit. It is designed to improve pupil's knowledge of the machine.</p>
<p>Closing Activity: Class discussion</p>	<p>Discuss the benefits of regular activity and good hygiene.</p>

The Damper Lever and Drag Factor

The load on the Concept 2 Indoor Rower is unlike any normal resistance training equipment. There is no pre-set load; what is measured is the ability of the user to accelerate the flywheel overcoming the frictional force of the air opposing the flywheel rotation. The monitor display of the flywheel is a numerical calculation using the acceleration, speed of rotation and moment of inertia.



The damper lever on the side of the fan cage controls the drag factor. With the damper set to level 10 more air can pass across the fan increasing the rate of deceleration (drag). The monitor detects the increase in drag and an adjustment is made to the pace readout.

The monitor displays the drag factor as a number in the order of 100 at level 1 and around 220 at level 10 on a new machine. If the perforations on the fan cage become clogged, then to achieve the same drag factor the damper lever will need to be put on a higher setting. The monitor detects the effect on the flywheel not the position of the damper lever so although the setting on different machines may not be the same, the drag factor reading will always be correct.

Rowers on water use the machine in the range of 130 to 140 or level 3 to 4. The reason for this is that at this level the feel is closest to that of a racing boat therefore making the training rowing specific. Non-rowers using the machine for cross-training or as a sport in it's own right may benefit from a damper setting outside of this range.

As a general rule, bigger heavier and stronger users would tend towards level 10 while smaller lighter users would benefit from a lower setting.

It is a question of trial and error to find the most suitable setting for each individual. Once you have found the ideal set up note the drag factor rather than the damper lever setting, as this will remain constant across different machines.

Resistance Circuit

Circuit One

Rower: _____

Activity	Score

Circuit Two

Rower: _____

Activity	Score



Circuit Training Station Ideas

Press Ups

Squats

Sit Ups

Tricep Dips

Star Jumps

**Dorsal
Raises**

Burpees

**Squat
Thrusts**

Crunches

Step Ups

Skipping

Pull Ups



90



100

110

120

130

Year 7 Lesson 3

Aim: Managing STROKES PER MINUTE

Technique Objectives

- Become familiar with indoor rowing terminology
- Understand & practice good technique

The order of the stroke:

- The arm movement
- The body swing
- The compression of the legs

The phases of the stroke:

- The Finish
- The Catch
- The Drive
- The Recover

Rhythm & Ratio - 2 : 1 or 3 : 1

Resources

- Stroke Length recording sheet
- iRate recording sheet

ICT Objectives

Pupils are able to:

- Determine and manage 'strokes per minute' (S/M)
- Understand the meaning of the /500m split

Challenges

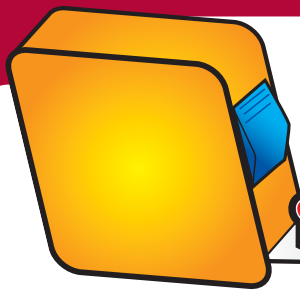
- iRate
- Stroke length challenge
- Distance recording sheet

National Curriculum Programme of Study: (Athletic Activities: 5e)

1a, 1b, 2a, 2b, 2c, 3a, 3b, 4a, 10a

Year 7 Lesson 3

Pupil Activities	Teacher Notes
<p>Warm up Activity: Circuit</p>	<p>Pupils should check that drag factor on each machine is set to 115. Complete the circuit from Lesson 2. Reduce intensity and time so that it can be used for a warm up.</p>
<p>Understanding Stroke Length (Task 1)</p> <p>In pairs.</p> <p>Pupils take 7 strokes at 3 stroke lengths, (arms only, arms and body, full slide) - record stroke rate (S/M) & best /500m split in the 1st attempt column on Task 1 worksheet.</p> <p>Partner repeats process.</p> <p>2nd Attempt, repeat Task 1 & try to beat your score from 1st Attempt.</p>	<p>At the end of the pupils' 1st attempt make the following points as stroke length increases:</p> <ul style="list-style-type: none"> stroke rate decreases – because of the increase in length of the stroke /500m split decreases – due to an increase in power (larger muscle groups being used in the drive phase) <p>Allow pupils to discuss their findings and repeat the task aiming to improve previous results.</p>
<p>iRate (Task 2)</p> <p>In pairs.</p> <p>Pupils set the monitor to display 2 minutes and record the distance rowed. They must maintain a stroke rate within the "Zone" (20 to 30 S/M). Allow 10 strokes at the beginning of the task to get into the "Zone".</p> <p>Penalty – falling outside of the "Zone" incurs a 10m penalty subtracted from the final distance rowed.</p> <p>The total score at the end of the 2 minutes is:</p> <p>Score = Total Distance – (number of penalties x 10m)</p> <p>Winning rower = greatest distance rowed.</p> <p>Repeat this task and try to beat your last distance.</p>	<p>Refer to the iRate Teachers notes for additional information on how this challenge can be used.</p> <p>To increase the difficulty of iRate;</p> <ul style="list-style-type: none"> reduce the size of the "Zone" (from 20-30, to 20-25, to 22-24) increase the duration to 3, 4 or 5 minutes <p>Remind rowers to record the total metres rowed in this lesson on their Distance Recording Sheets.</p> <p>Encourage Rowers a 3:1 ratio per stroke - refer to Technique DVD</p> <ul style="list-style-type: none"> 3 = time from Finish through to Recovery 1 = time from Catch through the Drive
<p>Closing Activity</p> <p>Create a variation of the name game in preparation for next weeks lesson.</p>	



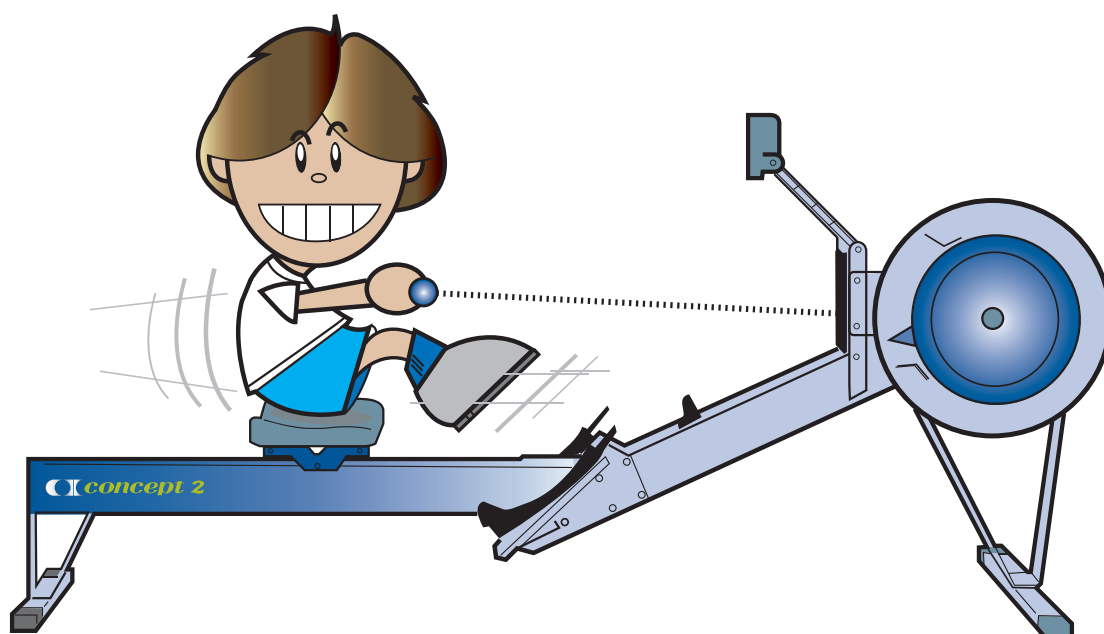
Stroke Length Recording

Stroke Length - (Task 1) - Rower 1

Stroke length	1st Attempt		2nd Attempt	
	S/M	/500m Split	S/M	/500m Split
Arms Only				
Arms & Body Swing				
Full Slide				

Stroke Length - (Task 1) - Rower 2

Stroke length	1st Attempt		2nd Attempt	
	S/M	/500m Split	S/M	/500m Split
Arms Only				
Arms & Body Swing				
Full Slide				



iRate

Name of Rower _____

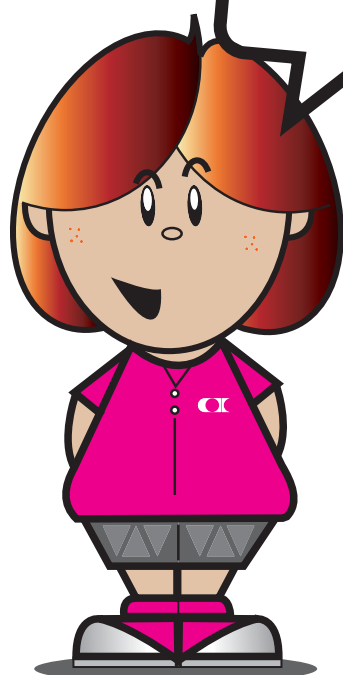
	Distance Rowed	Number of Penalties	Total Distance
Rower 1			
Rower 2			

Name of Rower _____

	Distance Rowed	Number of Penalties	Total Distance
Rower 1			
Rower 2			

Don't Forget

Write the total number of metres you have rowed on your record sheet.





Teachers Notes

How to Play:

1. Set the monitor to a pre-specified time or distance e.g. 2 mins. or 500m.
2. Level 1 - Rowers incur 10 metre penalties
Level 2 - Rowers have five lives
3. Tell all rowers that they must try to complete their row and at the same time maintain a 'constant' stroke rate trying to keep within the 'zone'. This 'zone' for example could be between 20 – 30 strokes per minute.
4. Each rower should be watched by a partner. Each time that they fall out of the 'zone' they incur a penalty or lose one of their lives. This continues until either they lose all of their lives, or they complete their time/distance. NB Allow approx. 10 strokes before they begin to lose lives as inexperienced rowers will need this time to find and settle into the 'zone'.
5. Points can be awarded to teams/individuals as the teacher sees fit.
6. A white flag can be held up until a rower loses all his/her lives when a red flag is displayed. This visual aid helps the rowers to gage their performance against the other rowers, this often encourages them to try harder next time.

Teaching Points:

- This challenge should only be attempted once rowers have been introduced to the S/M feature on the monitor.
- Many students new to the indoor rowing equipment seem to think that they are only working hard if they pull lots of 'short' strokes as quickly as they can. The problems with this are twofold. Firstly, 'short' strokes are a very inefficient way of covering distance, and so 'complete' strokes should be encouraged from the start. Secondly moving up and down the slide at speed can only be maintained for a very short time. Students must be encouraged to understand the need to 'pace' themselves in just the same way as they would in a running race.
- Students need to recognise that 'power' can be achieved in each and every stroke provided that each stroke is completed in a controlled, technically correct manner and at a pace they can maintain for the duration of the row. They should remember this in order to row further on their second attempt.
- It is useful to get the students to listen to the difference in sound that the 'Fly Wheel' makes when short, rapid strokes are made, and compare that to the sound that it makes when longer, more powerful strokes are taken. Students can even be asked to close their eyes and listen. They can then try to guess which style of stroke has achieved the furthest distance on the monitor in a given number of strokes eg 10.

- As students begin to become more efficient technically, they will find it easier to work within given zones. To begin with aim to bring the S/M below 30, so a 'zone' of 20 – 30 could be used. As they improve gradually bring this down to 22 – 24S/M. Widening the 'zone' will make the challenge easier, narrowing it will make it harder!
- This challenge can be extended further as students really begin to improve. Set a low, narrow S/M and a timed challenge e.g. 3 mins. They must try to stay within the 'zone' for that row, but the challenge is also to see who can row the furthest. Now they are having to focus not only on 'stroke rate', but also on the 'power' of each stroke.

Organisation:

- This challenge can be completed as individuals(Level 1), working in pairs(Level 2), or as a team competition(Level 3). However, it is best to let them have a go as individuals first so they can make their initial attempts without the pressure of being part of a team.
- Lots of different points systems can be devised by the teacher and the pupils themselves. Distances can be tallied up as each team member makes their attempt at the challenge. If they lose all their lives before completing the challenge the distance achieved is recorded. A 50m additional reward can be given to rowers who complete the challenge without losing all their lives.
- This challenge is best suited to a 'star' shaped arrangement of machines as all rowers are able to see each other.
- When doing a team competition try to ensure that each team judges another. If they judge their own team mates they will inevitably cheat !!!!!!!!
- Those students not participating on a machine can be given a variety of roles to ensure that they remain on task. These inc. passive observer, performance judge, coach, data recorder or data analysis.
- Make a note of those rowers who are finding this challenge difficult/easy. This is important because you will need to do lots of work on stroke rates with the students, as it is a fundamentally important part of indoor rowing. Making notes about the students will enable you to group together rowers of a similar ability and set them differentiated tasks using the various levels of this challenge.

Year 7 Lesson 4

Aim: Planning for IMPROVEMENT on the Indoor Rowing Machine	
<p>Technique Objectives</p> <ul style="list-style-type: none"> • Become familiar with the names of the parts of the Indoor Rower • Become familiar with indoor rowing terminology • Understand & practice good technique 	<p>Resources</p>
<p>ICT Objectives</p> <ul style="list-style-type: none"> • Determine 'strokes per minute' (SPM) • Understand the meaning of the projected metres [proj.m] • Setting the pace boat • Set and record the distance of a row 	<p>Challenges</p> <ul style="list-style-type: none"> • 2 minute pace boat challenge • Distance Recording Sheet • One round of the Concept2 Schools Indoor Rowing League
<p>National Curriculum Programme of Study: (Athletic Activities: 5e) 1a, 1b, 2a, 2b, 2c, 3a, 3b, 4a, 10a, 10b</p>	

Year 7 Lesson 4

Pupil Activities	Teacher Notes
<p>Warm up Activity Name Game Variation</p> <p>2 minute Pace Boat Challenge In teams of 5 (Task 1)</p> <p>5th Rower – Complete a 2 minute row using best technique to achieve furthest distance</p> <ul style="list-style-type: none"> • Set the monitor for 2 minutes • Set screen to display pace boat by pressing the change display button (2 boats on the screen) • Record your distance and compare to your week 1, 2 minute row distance <p>4th Rower - Complete a 2 minute row using best technique to achieve furthest distance and try to beat the last rower (the paceboat).</p> <p>Press:</p> <ul style="list-style-type: none"> • Select Workout • ReRow • Choose the last rower's 2 minute row from the list (this should be at the top) • Press the ✓ to confirm • You are now set to race against the last rower's 2 minute performance • Record your distance and compare to your week 1 2 minute row distance <p>3rd Rower – as above 2nd Rower – as above 1st Rower – as above</p>	<p>Pupils to create a variation of the name game as their warm up activity. Pupils lead their own groups in indoor rowing related stretching.</p> <p>In their team ask the pupils to guess what order they would finish in if they were to race each other for 2 minutes on the indoor rower and number themselves 1st to 5th. This order will determine the order in which they row this task.</p> <p>This task is designed to allow rowers, 2-5 to beat the pace boat. You should highlight that it is easier to do a better performance when racing the paceboat than it is without it.</p> <p>At the end of this task ask teams if they predicted the correct finishing orders. (Each rower should have beaten the pace boat if they were correct). Now ask the teams to stand in the actual order that they finished in. Number the rowers 1st to 5th. Ready for Task 2.</p> <p>Take the opportunity to watch the class rowing this task to assess how much they have learned.</p> <p>Feedback your observations. Use rowers to highlight examples of effective technique.</p>

continued 

Task 2:

- 5th Rower – Complete a 2 minute row using best technique to beat your furthest distance
 - Set the monitor for 2 minutes
 - Set screen to display projected metres (proj. m) and try to beat your best ever 2 minute distance
 - Record your distance and compare to the British Indoor Rowing Championship results for your year.
- 4th Rower - Complete a 2 minute row using best technique to beat furthest distance
 - Select Workout
 - ReRow
 - Set screen to display projected metres (proj. m) and try to beat your best ever 2 minute distance
 - Record your distance and compare to the British Indoor Rowing Championship results for your year.

- 3rd Rower – as above
- 2nd Rower – as above
- 1st Rower – as above

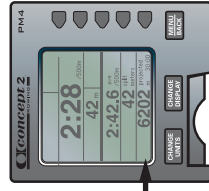
Regroup the pupils with all 5th place rowers in one team, all 4th place rowers in one team etc.

In their new teams ask the pupils to predict what order they would finish in if they were to race each other for 2 minutes on the indoor rower (use your distance from Task 1 to make this prediction) and number themselves 1st to 5th.

Repeat the process of Task 1.

To set the monitor to show projected metres (proj. m) once the monitor has been set to 2 minutes, press change display until the full display is shown with split in the middle of the screen and proj. m shown. This display will predict how far you will row if you continue at your current pace

Discuss pacing with rowers before they start, review their pacing from Lesson 1 and develop a race plan. Have the results from Lesson 1 for pupils to check to see what their targets are.



Projected Metres

At the end of this task ask pupils if they have improved their 2 minute performance since week 1.

In teams of 4 or 8 complete a round of the Concept2 Schools Indoor Rowing League

In teams of 4 or 8.
Pupils not rowing should be holding the rowers feet and making sure that the rowing machine does not move, this will help improve the score achieved.

Using the Concept2 website complete a round of the Schools Indoor Rowing League www.concept2.co.uk/league
Add your results to the league website.

Rankings Board

Create a Year 7 Ranking Notice Board.
Display alongside the Year 7 results from the British Indoor Rowing Championship so that pupils to compare their performances.

Year 8 Unit Of Work

Technique Objectives	ICT Objectives	Resources	Challenges
<p>Pupils:</p> <ul style="list-style-type: none"> Understand & practice good technique Employ good technique in performance situations Are able to increase/decrease the power of a stroke in single stroke isolation without changing the rate Are able to increase/decrease power output over longer periods without changing the S/M Are able to participate fully in team/crew based rowing activities which involve working to your own, others & given stroke rates Are able to identify a race profile for a three minute set piece. eg fast start for 7 to ten strokes, settle into a mid race pace then accelerate for home in the last 60 seconds, 40 seconds if Power is less fit 	<p>Pupils know & are able to:</p> <ul style="list-style-type: none"> Monitor power/effort (/500m) Monitor stroke rate (S/M) Recognise when to alter stroke rate Recall information about performance using the memory function ReRow against previous work 	<p>Pupils experience:</p> <ul style="list-style-type: none"> 3 Stroke Experiment Match Play IRGolf (Pairs) Circuit Exercise Sheet 3 minute race plan sheet Distance recording sheet Venue race application British Indoor Rowing Champs year 8 boys and girls results 	<p>Pupils complete:</p> <ul style="list-style-type: none"> A 3 minute row at the beginning and end of the unit. Compare distances achieved to the BIRC results on the Concept2 website A distance recording sheet building towards a Concept2 Distance Award A minimum strokes relay A Venue Race

Year 8 Lesson 1

Aim: Understanding STROKE POWER in Indoor Rowing

Technique Objectives

- Employ good technique in performance situations
- Understand & practice good technique
- Increase/decrease the power of a stroke in single stroke isolation without changing the rate

Resources

- 3 Stroke Experiment recording sheet
- Match Play IRGolf (Pairs) sheet
- Circuit exercise sheet
- Distance recording sheet

ICT Objectives

- Monitor power/effort
- Recall information about performance using the memory function

Challenges

- 3 minute row
- Complete a Distance Recording sheet building towards a Concept2 Distance Award

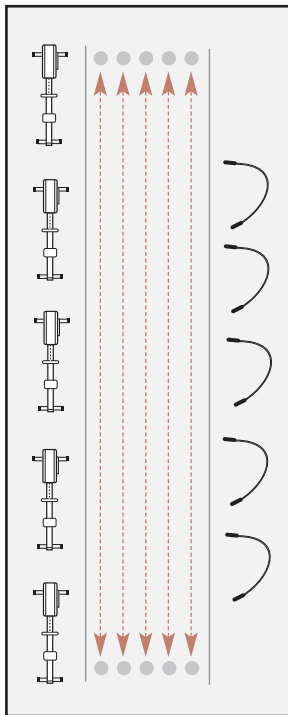
National Curriculum Programme of Study: (Athletic Activities: 5e)

1a, 1b, 2a, 3a, 4a, 4c, 10b

Year 8 Lesson 1

Pupil Activities

Set up of machines



Teacher Notes

Split the room into three parts, section 1 for the Indoor Rowers, section 2 for shuttle runs, section 3 for Skipping.

Warm up Activity: Indoor Rowing Triathlon

Rowers work in pairs. Divide pairs into three groups.

Assign each group a skipping, running or rowing station. Partner 1 works on station for 1 minute, partner 2 records. Change over. Partners swap over. Repeat circuit twice if time allows. Stretch.

Challenge 1: 3 minute row

Set monitor to three minute row

Complete a three minute row with aim of travelling as far as possible.

Compare your results to the BIRC results.

Teacher explains how to set monitor for three minute challenge

From the main menu press:

- [Select Workout]
- [New Workout]
- [Single Time]

Use arrows, + and – buttons displayed on screen to adjust the time

Once the time is set to 3 minutes, select the ✓

On your Distance recording sheet record Time, Distance, average /500m and average S/M. To get this information press [more options] [memory].

The black arrow will be pointing to YOUR 3 minute row, press [P]. The top line has the information you require.

Three Stroke Experiment - Task 1

Set monitor to [Just Row]

Take 3 strokes using maximum effort.

Record distance achieved on 3 stroke experiment sheet.

Most will row the three strokes back to back without allowing the flywheel to slow down – this is the purpose of the first attempt.

Teacher Demonstration

With class sitting around one rowing machine the teacher should demonstrate three strokes with maximum effort, taken one after the other without allowing the flywheel to slow down.

Tell pupils the distance you have rowed. Ask pupils which information on the monitor tells them about the POWER or EFFORT in each stroke. It is /500m split. This is a measure of the power of EACH stroke you take. It tells you that if you continue with that same level of effort you will row 500m in the time displayed. Obviously, the lower the time, the more POWER you are achieving and the FASTER you will complete 500m.

	<p>Now row three strokes with maximum effort but allow the flywheel to stop completely after each stroke. Ask pupils to predict what distance you have rowed.</p> <p>You should have rowed much further by letting the flywheel stop after each stroke.</p> <p>Ask pupils why this is.</p> <p>You have allowed the boat to travel the full distance of the stroke without interrupting it.</p>
<p>Three Stroke Experiment - Task 2 Set monitor to [Just Row]. Take 3 strokes and attempt to double the distance achieved in Task 1. Record distance achieved on 3 stroke experiment sheet.</p>	<p>After completing Task 2 - Raise discussion – Is it better to let the flywheel stop completely between each stroke? Discourage this as it requires more energy to start a stationary flywheel than it does to accelerate a moving flywheel. Encourage allowing the Flywheel to almost stop between each stroke.</p>
<p>Three Stroke Experiment -Task 3 Set monitor to [Just Row] Take 3 strokes and attempt to halve the distance achieved in Task 1. Record distance achieved on 3 stroke experiment sheet</p>	<p>This provides an opportunity for Rowers to learn about applying different pressure in a stroke.</p>
<p>Match Play IRGolf (Pairs) Follow instructions on the handout.</p>	<p>This game encourages experimentation with stroke pressure as they try to drive the ball to different distances. Use the opportunity to comment on individual stroke techniques.</p> <p>Whilst half the group are playing golf the other half should be completing a fitness training circuit of your choice. Sample exercise ideas can be found on the Circuit Exercise Sheet provided.</p>
<p>Recording Record your total distance rowed today on the Distance Recording Sheet</p>	

Three Stroke Experiment Recording Sheet



Name:

Name:

Activity	Score
3 Strokes Max Effort	
3 Strokes, Double the Distance	
3 Strokes, Halve the Distance	

Activity	Score
3 Strokes Max Effort	
3 Strokes, Double the Distance	
3 Strokes, Halve the Distance	

Name:

Name:

Activity	Score
3 Strokes Max Effort	
3 Strokes, Double the Distance	
3 Strokes, Halve the Distance	

Activity	Score
3 Strokes Max Effort	
3 Strokes, Double the Distance	
3 Strokes, Halve the Distance	



Match Play IRGOLF

Instructions:

The first to row takes the number of strokes defined by the par of the hole, i.e. Hole 1, Par 4 = 4 strokes.

Player 1 rows the 4 strokes and records the distance achieved in the box provided.

Player 2 then tries to replicate the distance rowed by player 1.

Players alternate who tees off, i.e. who rows first.

Scoring

If player 2 gets within 5m of the distance of player 1, then player 2 wins the hole and scores 1 point.

If player 2 gets within 10m of the distance of player 1, the hole is halved and both players get $\frac{1}{2}$ a point

If Player 2 is more than 10m away from the distance of player 1 then player 1 wins the hole and scores 1 point.

The player with the highest score at the end wins the game.

Player One

.....

Player Two

.....

	Player 1		Player 2	
	Distance	Score	Distance	Score
Hole 1, Par 4				
Hole 2, Par 4				
Hole 3, Par 3				
Hole 4, Par 4				
Hole 5, Par 5				
Hole 6, Par 4				
Hole 7, Par 3				
Hole 8, Par 4				
Hole 9, Par 5				
Total				



Circuit Exercises Sheet



Press Ups	Squat
Sit Ups	Tricep Dips
Star Jumps	Dorsal Raises
Burpees	Squat Thrusts
Step Ups	Grip Strength Dynamometer
Sit & Throw	Tuck Jumps on a Crash Mat
Pull Ups	Crunches
Wide Grip Press Ups	Close Grip Press Ups
Plank	Side Plank

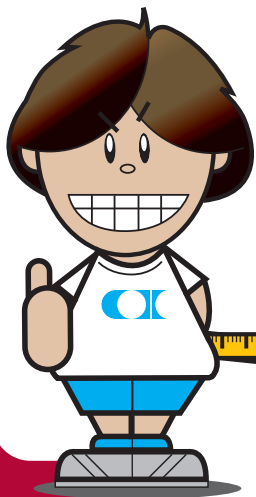
Distance Recording Sheet

Race Results

Date	Time	Distance	ave/500m	ave S/M

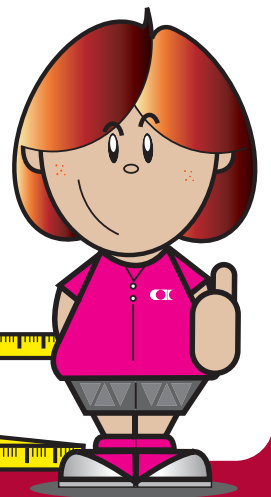
Total Metres Rowed

Date	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6	Total



Name Of Rower

.....



Year 8 Boys British Indoor Championship Results 2007



Pos.	Name	Age	Club	Distance
1	James Davies	13	Colmers Sch IRC	870
=2	Jasroop Bhogal	13	Bishop Vesey Grammar Sch	848
=2	Alex Matthew	12	Great Marlow Sch	848
4	Callum Jones	12	Newark RC	846
5	Luke Street	12	Colmers Sch IRC	834
6	Bill Ewans	13	John Hampden Grammar Sch	826
7	Oliver Edkins	12	Stratford-upon-Avon BC	804
8	Lewis Maberly	12	Knowles Hill Sch	791
=9	Blake Heron	12	Peterborough RC	789
=9	Ross McIldowie	13	Evesham RC	789
11	Callum Anderson	13	Walbrook Juniors	785
12	Joe Topham	12	Nottingham City Schs Rowing	777
13	Thomas Brewer	12	Plymstock	776
14	Laurie Johncox	13	Eton Excelsior	773
15	Kieran Finney	12	Stoke RA	772
16	Jack Sewell	12	Nottingham City Schs Rowing	768
=17	Alexander Pavitt	13	Agecroft RC	752
=17	James Rogers	12	Plymstock Sch	752
19	David Nicholas	12	Eton Excelsior RC	751
20	William Taylor	13	Evesham RC	750
21	Alfie Horn	12	Eton Excelsior RC	746
22	Harry Austin	12	BTC Southampton	737
23	Owen Godwin	13	Grenville Coll	723
24	Jake Yabsley	12	Plymstock Sch	720
25	Sam Harrison	13	Dover RC	716
=26	Sunjay Kohli	12	Bishop Vesey Grammar Sch	715
=26	Oliver Crawford	13	Walbrook Juniors	715
28	Oliver Griffin	13	Colmers Sch IRC	713
=29	Andrew Jamieson	12	Walbrook Juniors	706
=29	Adrian Gurney	13	Great Marlow Sch	706

Year 8 Girls British Indoor Championship Results 2007



Pos.	Name	Age	Club	Distance
1	Rowan Raynor	12	Nottingham RC	811
2	Rebecca Morgan	12	City of Cambridge RC	803
3	Alice Wharmby	12	Wrekin Coll	798
4	Emily Ford	13	Grange Sch RC	784
5	Francesca Eastment	12	Hinksey Sculling Sch Ltd	775
6	Imogen Leigh	12	Tees	771
7	Holly Wilson	12	Lady Eleanor Holles Sch	759
8	Anna Fairs	12	Tees	754
9	Tegan Parsons	12	Evesham RC	752
=10	Gemma Titchmarsh	12	Peterborough City RC	746
=10	Shona Wright	13	Huntingdon RC	746
=12	Nikki Burnett	12	Dover RC	745
=12	Meghan Lawless	12	Peterborough City RC	745
14	Jess Sherlock	12	Great Marlow Sch	742
15	Lilly Cocks	13	Walbrook Juniors	737
16	Charlotte Wilding	12	Pipers Corner Sch	736
=17	Lucille Kenny	12	Peterborough RC	735
=17	Helen O'Riordan	12	Thames RC	735
=17	Fizzy Horne	12	Lady Eleanor Holles Sch	735
=20	Alice Harper	12	Walbrook Juniors	734
=20	Rosie Morgan	13	Cranford House Sch	734
22	Emily Butler	12	Stoke RA	729
=23	Claudia Wright	12	Warrington RC/Lymm H Sch	728
=23	Rebecca Patrick	13	Nottingham City Schs Rowing	728
25	Sophie Hill	13	BTC Southampton	724
26	Catherine Hunt	12	Helsby H Sch/Runcorn RC	722
27	Emma Boddy	13	Great Marlow Sch	721
=28	Harriet Slater	12	Plymstock Sch	719
=28	Sarah Lyons	12	Nottingham RC	719
30	Susanna James	13	Colmers Sch IRC	715

Year 8 Lesson 2

Aim: Controlling STROKES PER MINUTE and power simultaneously

Technique Objectives

- Understand & practice good technique
- Are able to participate fully in team/crew based rowing activities which involve working to your own, others & given stroke rates

Resources

- Distance recording sheet

ICT Objectives

- Monitor power/effort
- Monitor stroke rate
- Recognise when to alter stroke rate
- Recall information about performance

Challenges

- Complete a cumulative distance recording building towards a Concept2 Distance Award

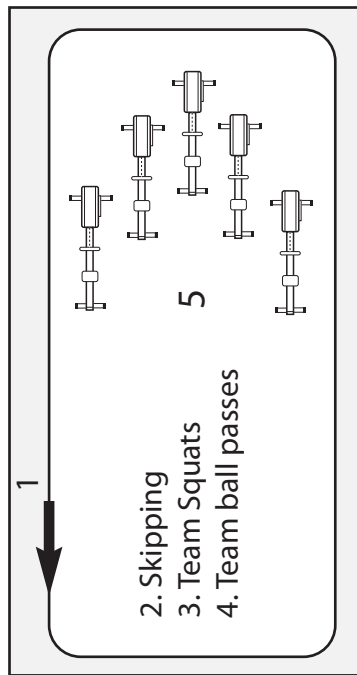
National Curriculum Programme of Study: (Athletic Activities: 5e)

1a, 1b, 2a, 2b, 2c, 3a, 3b, 4a, 10a

Year 8 Lesson 2

Pupil Activities

Warm up Activity: Team Building.



Teacher Notes

Create five teams of common ability

Set up a five/six station team building circuit, which could include:

1. Control group, lap running. Once they have completed a given number of laps then stations rotate
2. Paired Skipping
3. Team Squats - the group should link arms, facing outwards and do squats together.
4. Team Ball Passes - sitting in a circle, feet facing out, passing a Basketball or a Medicine ball around the group
5. Group on the Indoor Rowers. 1 person designated as the "stroke" leads the group through arms only, arms and body swing, ¼ slide, ½ slide, ¾ slide and full slide. 15 strokes at each stroke length.

Have a recording sheet at each station so that the team can record their achievement for the incoming group to use as a target.

Task 1: WeRate

Nominate a 'Stroke' or 'leader' of your crew.

In your crew undertake a 3 minute synchronised row.

The aim of the row is to stay in time with the "stroke" or "leader" of your crew and row as far as you can.

If anyone falls out of time with the "stroke" (i.e. at the catch when the "stroke" is at the finish) the team loses 10m.

Use the Large Text Display on the monitor. Ensure that the large figures in the middle of the screen show /500m and the box below shows m.

If the monitor is not showing the large text display press

- [change display] until it does.
- [change units] until it does.

Record your distance and ave /500m split on your distance recording sheets, using the memory function.

WeRate

Introduce Rowers to the idea of a crew with a "stroke".

The "stroke" is responsible for setting a stroke rate that all team mates can match and follow. Choose a competent rower for this role and decide on a suitable S/M to work to.

Rowers from another team should judge to ensure that no one falls out of time. At the end Rowers should record their individual distances and average /500m split for the three minute row.

continued

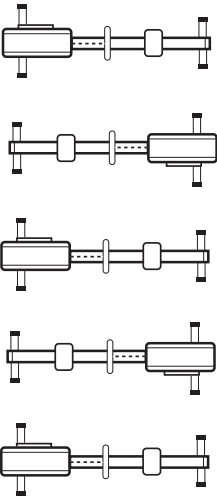
<p>Task 2: Class discussion and target setting for Task 3.</p>	<p>Teacher recaps the meaning of /500m split to Rowers: Which part of the monitor shows how powerful each stroke is?</p> <ul style="list-style-type: none"> • /500m Split <p>Reinforce the idea that a lower split means a shorter time to row 500m i.e. 1:50 is faster than 2:00. Ensure that Rowers understand the difference between /500m split (actual stroke by stroke reading) and ave /500m (average of all stroke readings). You are now going to repeat task 1 aiming to further the distance you rowed. In your crews discuss how you can row further in the same time. Agree that all rowers should aim to decrease their /500m by approx. 1–2 seconds.</p>
<p>Task 3: WeRate Repeat Task 1. Target – increase the distance rowed by the team. Compare the distance rowed in Task 1 and Task 3 and put the difference on the whiteboard. The team with the greatest distance improvement will be the winning team.</p>	<p>Differentiation: For the more able Rowers direct them to use the ave /500m view on the monitor whilst rowing so that they have immediate feedback on how well they are meeting their target. Less able Rowers should row with the monitor display as described in Task 1 and at the end of the row should press [memory] to find the average /500m. Reward the team who have improved most between Task 1 and 3.</p>
<p>Discussion Was it harder to row in time with your team mates? Did you achieve your target? If so how? If not why not? Were you more motivated because you were part of a team?</p>	<p>Try altering the positions of the rowing machines, i.e. star shapes, lines, arrows, putting the machines around the room in random positions, blindfolding the students so that they have to listen carefully for their team mates.</p>
<p>Recording Record your total distance rowed today on the Distance recording sheet plus average /500m and average S/M</p>	

Year 8 Lesson 3

SECTION 11

Aim: Creating a RACEPLAN for a 3 minute race	
<p>Technique Objectives</p> <ul style="list-style-type: none"> • Employ good technique in performance situations • Understand & practice good technique • Are able to increase/decrease effort over longer periods by changing rate • Are able to participate fully in team/crew based rowing activities which involve working to your own, others & given stroke rates • Are able to identify a race profile for a three minute set piece. This should have a fast start for 7 to ten strokes, settle into a mid race pace then accelerate for home in the last 60 seconds, 40 seconds if Rower is less fit. 	<p>Resources</p> <ul style="list-style-type: none"> • Minimum strokes relay • 3 minute race plan sheet • 3 minute race plan sheet - teachers notes
<p>ICT Objectives</p> <ul style="list-style-type: none"> • Monitor ipower/effort • Monitor stroke rate • Recognise when to alter stroke rate • Recall information about performance • ReRow against previous workouts 	<p>Challenges</p> <ul style="list-style-type: none"> • Complete a 3 minute challenge • Complete a distance recording building towards a Concept2 Distance Award • Complete a minimum strokes relay
<p>National Curriculum Programme of Study: (Athletic Activities: 5e) 1a, 1b, 2a, 2b, 3a, 3b, 4a, 10a, 10b</p>	

Year 8 Lesson 3

Pupil Activities	Teacher Notes
<p>Set up of machines</p> 	<p>Cardiovascular activity without the use of the indoor rowers – teacher's choice. Stretch.</p>
<p>Warm up Activity: Teachers choice.</p> <p>Challenge 1: Minimum Strokes Relay (in teams) Complete 1,000m in the minimum number of strokes. Set the monitor to display 1,000m. Each rower must only take 10 strokes before change over. The winning team will complete the distance with the least number of strokes. Assign one member of the team to record the number of strokes that the team next to you take..</p>	<p>Divide class amongst the Indoor Rowers. Each team decides on their own rowing order and must stick to this. Setting the monitor from the main menu press:</p> <ul style="list-style-type: none"> • [Select Workout] • [New Workout] • [New Time] <p>Rowers must remember all they have learned from lesson 1 about efficient stroke technique. Try to use /500m splits information to determine effort in each stroke.</p>
<p>Task 1: Planning to Complete a 3 minute row In your team create a race plan for a 3 minute row Consider what the start, middle and end of the race should feel like. Choose a rower in your group to test your race plan on. Other team members should carry out one of these roles:</p> <ul style="list-style-type: none"> • Calling out every 10 strokes • Calling out the split every 10 strokes • Record the rowers split every 10 strokes • Calling out the stroke rate every 10 strokes • Record the stroke rate every 10 strokes 	<p>Teacher introduces the idea of creating a race plan and following it to achieve the best distance for a 3 minute row. Handout a blank raceplan sheet to each pupil and discuss a suggested race plan format:</p> <ul style="list-style-type: none"> • 20 secs (7-10 strokes) max effort • 2 mins mid race pace • 40 secs Finish <p>See teachers sample race plan for suggested points for consideration by the rowers. Ensure that Rowers understand that /500m split is a measure of how quickly the rower is currently completing 500m i.e. 1:58 is quicker than 2:02.</p>

continued 

<p>After the test row is complete evaluate and improve the race plan using the information given by your teacher and using the memory feature on the monitor to gather exact data about the row. Listen carefully to what the test rower tells you about how the test race plan felt.</p> <p>Using the information from the test race plan each pupil should have a chance to develop their own race plan.</p> <p>All remaining members of the team should complete the 3 minute row following the revised race plan in the same way as described above.</p> <p>Team members not rowing should assume one of the monitoring roles outlined above.</p>	<p>This is a practical task with team discussion around the rowing machine.</p>
<p>Relay</p> <p>In the same teams as above task, complete a 15 minute (5 x 3 minute) relay. Each rower should set the monitor to 3 minutes and follow their own race plan as closely as possible and record their final distance. Change over to next rower who repeats process using the [Rerow] feature.</p> <p>Add up to total distance achieved by the team to find the winning team.</p>	<p>Remind rowers to add all distances rowed to their recording sheet.</p>

3 Minute Race Plan - *Teachers Notes*



Rower: _____

Strokes	Stroke Rate	/500m split
10	48	1:39
20	39	1:42
30	37	1:45
40	37	1:47
50	35	1:50
60	36	1:48
70	37	1:47
80	40	1:46
90	42	1:43
100	44	1:44
110		
120		
130		
140		
150		

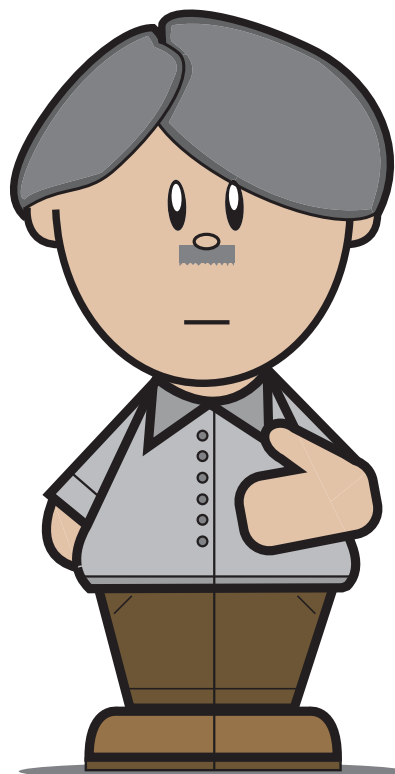
Start the race with 7 – 10 hard strokes – these strokes should be flat out

After the start, settle into mid race pace and let the stroke rate and split come down to manageable values for the 2 minutes in the middle of the race.

Pupils should aim to keep the stroke rate and split consistent through the middle of the three minute race.

Begin to increase stroke rate and sprint for the finish.

There should be improvement in Stroke Rate and Split to show that the push to the finish has worked.



3 Minute Race Plan



Rowers: _____

Strokes	Stroke Rate	/500m Split
10		
20		
30		
40		
50		
60		
70		
80		
90		
100		
110		
120		
130		
140		
150		

3 Minute Race Plan

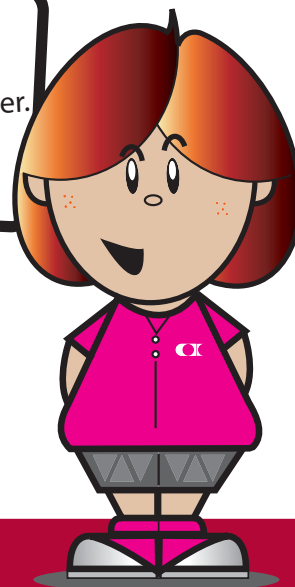


Rowers: _____

Strokes	Stroke Rate	/500m Split
10		
20		
30		
40		
50		
60		
70		
80		
90		
100		
110		
120		
130		
140		
150		

TIP!

Encourage your partner.

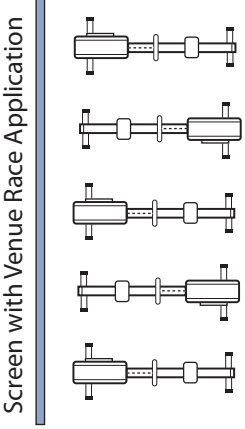


Year 8 Lesson 4

SECTION 11

Aim: To use VENUE RACE application to compete in a staged race event	
<p>Technique Objectives</p> <ul style="list-style-type: none"> • Understand & practice good technique • Employ good technique in performance situations • Are able to participate fully in team/crew based rowing activities which involve working to your own, others & given stroke rates • Are able to identify a race profile for a three minute set piece. This should have a fast start for 7 to ten strokes, settle into a mid race pace then accelerate for home in the last 60 seconds, 40 seconds if Rower is less fit 	<p>Resources</p> <ul style="list-style-type: none"> • 3 minute race plan sheet • Venue race application
<p>ICT Objectives</p> <ul style="list-style-type: none"> • Recognise when to alter stroke rate • Recall information about performance using the memory function 	<p>Challenges</p> <ul style="list-style-type: none"> • Complete a cumulative distance recording sheet building towards a Concept2 Distance Award • Experience a Venue Race • Compare distance achieved to the BIRC results on the Concept 2 website • Complete a 3 minute set piece at the beginning and end of the course, compare distances achieved
<p>National Curriculum Programme of Study: (Athletic Activities: 5e) 1a, 1b, 2a, 2b, 3a, 3b, 4a, 10a, 10b</p>	

Year 8 Lesson 4

Pupil Activities	Teacher Notes
<p>Set up of machines</p> <p>Screen with Venue Race Application</p> 	<p>For more information about the Venue Race Application see the Concept2 website or the ICT training guide.</p>
<p>Warm up Activity:</p> <p>In teams create a warm up using an Indoor Rower and SAQ equipment in your area of the sports hall.</p> <p>Task 1:</p> <p>Using your race plan from lesson three, improve and refine it. Plan the /500m split and stroke rate that you expect to do so that your team mates know how to encourage you.</p> <p>Take turns to complete the 3 minute row.</p> <p>Record your result on your distance recording sheet.</p>	<p>Guide Rowers in creating a suitable warm up for a three minute maximal intensity row.</p> <p>Complete the races in heats using the venue race application.</p>
<p>Task 2:</p> <p>What factors have affected your result for the three minute row?</p> <p>Have you improved since lesson 1?</p> <p>How might you alter your race plan in future rows?</p>	<p>Using the results from the three minute rows, create a timeline which shows the fastest rower through to the slowest rower.</p> <p>Using the distances achieved by each rower, create 5 evenly matched teams for the frantic relay in Task 3.</p> <p>Encourage rowers to compare their performances to those at the British Indoor Rowing Championships</p>
<p>Task 3: Frantic Relay</p> <p>In your teams decide on a relay strategy to compete against other teams in a 2,000m sprint race.</p> <p>Focus on the strengths of the individual rowers in your teams.</p>	<p>Rowers can choose to make their change overs after a number of strokes, a time or a distance. Ask each team to declare their race strategy to the other teams before the start. CONT.</p>

continued 

	<p>CONT. Rules for Frantic Relay:</p> <ul style="list-style-type: none"> • When not rowing, team members can hold the feet of the rower, thus saving time strapping and unstrapping feet onto the machine. • At the end of their row each team member should place the handle back into the handle hook. • Make sure that all pupils have; <ul style="list-style-type: none"> - Tucked in their shirts, - Tied up their shoe laces - Tied back their hair <p>Can Rowers predict which will be the winning strategy?</p>
<p>Recording Record your total distance rowed today on the Distance Recording Sheet. Work out your total distance rowed in the last four lessons. Do you qualify for a distance award from Concept2? If not arrange with your PE teacher to complete the remaining distance in your own time.</p>	<p>Teachers should be aware that Concept2 offer Distance Awards for anyone who achieves the required distances. See: www.concept2.co.uk/schools/distanceawardscheme.php</p>

Year 9 unit Of Work

Technique Objectives	ICT Objectives	Resources	Challenges
<p>Pupils:</p> <ul style="list-style-type: none"> Understand & practice good technique Employ good technique in performance situations Understand the 'Energy balance' equation Knowing how to use the Indoor Rowing machine to improve cardiovascular fitness Are able to participate in a given training session Are able to design a training session for either themselves or their rowing partner Understand how to measure resting pulse rate (RHR) Understand how to measure heart rate during exercise 	<p>Pupils know & are able to:</p> <ul style="list-style-type: none"> Identify calories used Predict distance covered (proj metres) Increase intensity /ave 500m Identify own intensity levels using the 3 star method Complete a continuous training session Complete an interval training session Complete a Fartlek training session 	<p>Pupils experience:</p> <ul style="list-style-type: none"> Continuous Exercise recording sheet Continuous , interval & Fartlek training sessions CalHorrific Own & partners training session Three star intensity method Triathlon score sheet Distance recording sheet Technique DVD 	<p>Pupils complete:</p> <ul style="list-style-type: none"> A 4 minute row at the beginning and end of the unit Compare distances achieved to the BIRC Results on the Concept2 website A 10 min row showing good technique & understanding of S/M A training session working to own intensity level A Venue Race A round of the Schools Indoor Rowing League

Year 9 Lesson 1

Aim: To understand the ENERGY BALANCE Equation in relation to exercise

Technique Objectives

- Understand & practice good technique
- Employ good technique in performance situations
- Understand the 'Energy Balance' equation

Resources

- CalHorrific - an apple, a packet of crisps and a bar of chocolate
- Technique DVD
- Distance Recording Sheet

ICT Objectives

- Identify calories used

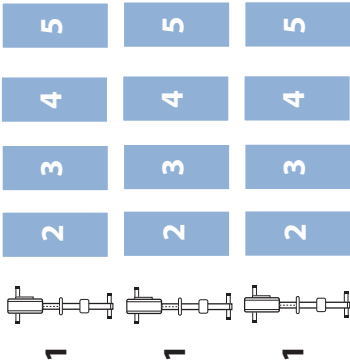
Challenges

- Record the distance achieved in a 4 minute row
- Compare distance achieved to the BIRC Results on the Concept2 website
- Venue Race Application

National Curriculum Programme of Study: (Athletic Activities: 5e)

1a, 1b, 2a, 2b, 3a, 4a, 4b, 4c, 10a

Year 9 Lesson 1

Pupil Activities	Teacher Notes
<p>Set up of machines</p>  <p>1: Indoor Rowing 2: Arm exercise 3: Abs exercise 4: Leg exercise 5: Rest</p>	<p>Set up rowing machines one behind the other with gym mats as shown in diagram.</p> <p>1: Indoor Rowing 2: Arm exercise 3: Abs exercise 4: Leg exercise 5: Rest</p>
<p>Warm up Activity</p> <p>Circuit to be completed twice. In the first circuit pupils on the indoor rower do arms and body swing only, in the second circuit pupils on the indoor rower take full strokes.</p> <p>Recommended time on each station = 1 minute.</p> <p>Stretch.</p>	<p>Divide the class into groups of 5.</p> <p>Use opportunity in each round of circuit to reinforce good technique.</p> <p>If facilities allow have the Concept2 'Technique' DVD playing on a continuous loop on a laptop/screen near the rowing machines.</p>
<p>Task 1: 4 minute row</p> <p>Pupils complete a 4 minute row as quickly & efficiently as they can and record their distance.</p> <p>Record the distance rowed and the number of calories burned in the four minute row.</p>	<p>Discuss a strategy for completing the 4 minute row quickly & efficiently. Remind pupils of the work they did on creating a race plan in Year 8.</p> <p>To display calories used press [change units].</p> <p>Record distances on recording sheet.</p>

continued 

Task 2: CalHorrific

Introduce the 'Energy Balance' equation :

Energy in = Energy out +/- Energy stored

As a relay team the groups will compete in a 3 level race to burn off

- firstly the calories in an apple
- secondly the calories in a packet of crisps
- thirdly the calories in a bar of chocolate

Using a relay system pupils should decide on the most efficient changeover format for the continual burning of calories e.g. number of strokes per rower, set distance per rower or set time per rower.

Before the task

Using the information from the 4 minute row ask pupils to try and predict how long it would take them to burn off the calories in an apple, a packet of crisps & a bar of chocolate.

Discuss:

- How far did pupils row?
- How many calories did you burn?
- Show an apple – how many calories are in an apple?
- Show a packet of crisps – how many calories are in a packet of crisps?
- Show a mars bar – how many calories are in a mars bar?

After the task

- How long did it take to burn of an apple, a packet of crisps or a mars bar?
- How close was your prediction?

Remember – this task has been completed as a team. If YOU eat a chocolate bar YOU need to do all that activity YOURSELF!

All teams will be trying to achieve the same target so the Venue Race Application can be used. Find details for this in the Concept2 ICT training guide.

Set the Venue Race Application for the total length of time remaining in the lesson.

Will they be able to complete the task in the time remaining?

Recording

Record your total distance rowed today on the Distance Recording Sheet.



Distance Recording Sheet

Race Results

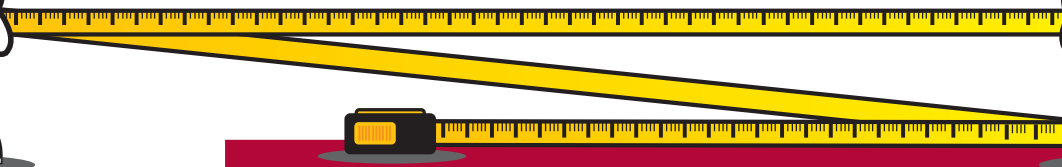
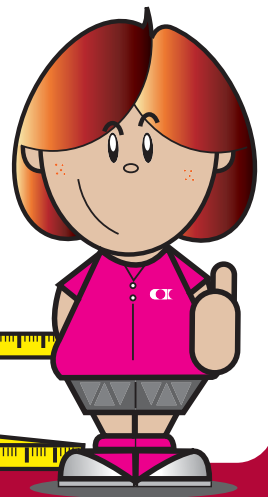
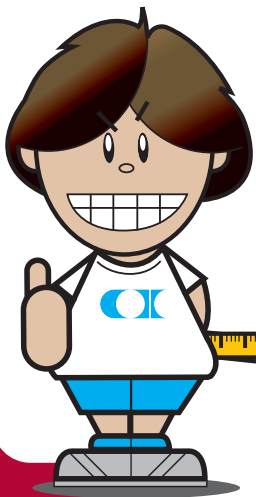
Date	Length of Row	Result

Total Metres Rowed

Date	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6	Total

Name Of Rower

.....



Year 9 Boys British Indoor Championship Results 2007



Pos.	Name	Age	Club	Distance
1	Jack Beaumont	13	Maidenhead RC	1177
2	Ben Elliott	13	York	1163
3	George Theobalds	14	Peterborough City RC	1157
4	Jacob Dawson	14	Plymstock Sch RC	1155
5	Connor O'Toole	13	Marlow RC	1147
6	Lee Harrison	14	Stoke RA	1146
7	Oliver Brierley	13	Warrington RC/Lymm H Sch	1139
8	Steve Dorme	14	John Hampden Grammar Sch	1135
9	Nathan Devaux-Daley	13	Wycliffe Coll	1129
10	Freddy Myatt	13	Hinksey Sculling Sch Ltd	1128
11	Ari Elakani	14	Nottingham City Schs Rowing	1124
12	Matthew Hnatiw	13	Llandaff RC	1122
13	Alex Lonsdale	13	Walbrook Juniors	1118
14	Thomas James	13	Llandaff	1115
15	Lewis Giles	14	Evesham RC	1114
16	Ryan Mitchell	13	Maidstone Invicta RC	1107
17	Ed Surman	14	Evesham RC/Ross RC	1104
18	Tyler Davis	13	Colmers Sch IRC	1099
=19	Sam Woodward	13	Scarborough RC	1096
=19	Aaron Taylor	13	Peterborough City RC	1096
=21	Aaron Reilly	13	Nottingham City Schs Rowing	1095
=21	Jake Buil	13	Newark RC	1095
23	Tom Hillsdon	13	Marlow	1094
24	James Garratt	13	Central IRC	1089
25	Alex Rollins	14	Clares Court Sch BC	1076
26	Cameron Houghton	14	Royal Chester RC	1075
27	Ishmael Khan	13	Birmingham Sch RA	1074
28	Huw Jarman	13	St. Neots RC	1072
29	James Barker	14	Grenville Coll	1071
30	Harry Gilmour	14	Windsor Boys Sch BC	1069

Year 9 Girls British Indoor Championship Results 2007



Pos.	Name	Club	Age	Distance
1	Alicia Brown	13 Nottingham RC		1091
2	Katie Bartlett	13 Nottingham RC		1087
3	Cecilie Sandager	13 Denmark		1068
4	Aimee Benning	13 Great Marlow Sch		1066
5	Molly Glenn	14 Hinksey Sculling Sch Ltd		1056
6	Beth Henderson	13 Tees		1049
7	Ellenor Peebles	13 Eastbourne RC/ MADIRC		1042
8	Lucy Burgess	13 Runcorn RC		1040
9	Alice Jackson	13 Grenville Coll		1038
10	Abbi Stringer	13 Maidstone Invicta RC		1034
11	Becky Lyster	14 Molesey BC		1032
12	Kelly Morris	13 Ross Junior Rowing Academy		1021
13	Molly McGrath	13 Latymer Upper Sch		1020
14	Connie Parris	13 Slough Grammer Sch		1015
15	Natasha Bradley	13 Evesham RC		1008
16	Charlotte Edwards Gayle	13 Great Marlow Sch		1003
17	Bethany Wynne	14 Northwich RC		998
18	Eleanor Blackwood	14 Ross Junior Rowing Academy		994
19	Sarah Padbury	14 Leicester RC		992
20	Abigail Delderfield	13 Maidstone Invicta		990
21	Georgia Mills	14 Leicester RC		989
22	Annie Cook	13 Grenville Coll		979
=23	Annie Frazer	13 Bruton Sch for Girls		973
=23	Tisha Phillips	13 Colmers Sch IRC		973
25	Laura Attwood	13 Evesham RC		958
26	Fae Atkinson	13 Helsby H Sch/Runcorn RC		956
27	Francesca Sinnott	13 Warrington RC		955
=28	Emily Rogers	13 Great Marlow Sch		954
=28	Anna Bain	13 Latymer Upper Sch		954
=30	Stephanie Fleming	13 Nottingham City Schs Rowing		948
=30	Joanna Fox	13 Stoke RA		948

Year 9 Lesson 2

Aim: Investigating different CARDIOVASCULAR ACTIVITIES and their different intensity levels

Technique Objectives

- Understand & practice good technique
- Understand how to use the rowing machine to improve cardiovascular fitness
- Understand how to take resting pulse
- Understand how to take heart rate during exercise

Resource

- Continuous exercise recording sheet
- Distance recording sheet

ICT Objectives

- Predict distance covered (proj metres)
- Complete a continuous training session

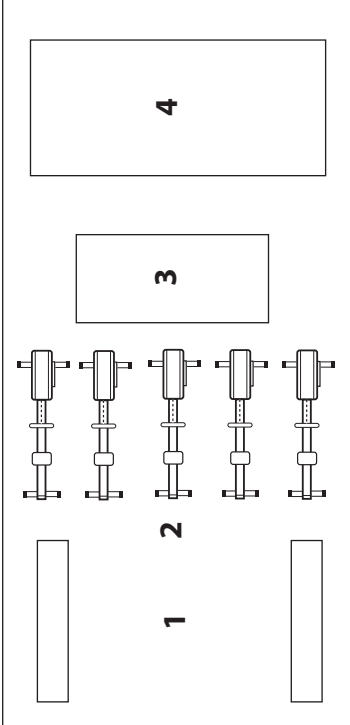
Challenges

- Complete a 10 min row showing good technique

National Curriculum Programme of Study: (Athletic Activities: 5e)

1a, 1b, 2a, 2b, 2c, 3a, 3b, 4a, 4b, 4c, 10a, 10b

Year 9 Lesson 2

Pupil Activities	Teacher Notes
	<p>Set up of machines</p> <p>For the Warm Up</p> <p>1= Netball Pass around the waist x 10 2= Row 10 strokes 3= Sit Ups x 5 4= Burpees x 5</p> <p>For the Main part of lesson</p> <p>1= Bench Ball Court (2 groups) 2= Indoor Rowing 3= Resting 4= Shuttle Runs</p>
<p>Warm up Activity</p> <p>All pupils take resting heart rate.</p> <p>Starting on Station 2 each team sits one behind the other, behind a rowing machine</p> <p>Relay Race.</p> <p>Number 1 Rower – jumps on rowing machine, takes 10 strokes, off machine sprints to Station 3, completes 5 sit ups, sprints to Station 4, completes 5 burpees, runs around to Station 1, passes the netball around waist 10 times and then joins the back of the team.</p> <p>Next person can start as soon as the rowing machine becomes free. Continue for 10 minutes. The winning team is the team with the greatest distance on their monitor.</p>	<p>Split the class into groups of five.</p> <p>Establish a good protocol for taking resting heart rate.</p> <p>Record on whiteboard.</p> <p>It is beneficial to row full strokes correctly to maximise the distance for each team member.</p>

continued 

<p>Main Task</p> <p>Descriptions of tasks for each activity area</p> <p>1=Bench Ball (5v5)- this counts as two stations</p> <p>2=Indoor Rowing – a continuous ten minute row attempting to double the distance of last weeks 4 minute row. Have [Proj Metres] on the monitor display</p> <p>3: Resting/stretching out</p> <p>4: Shuttle Runs- a continuous 10 minute run. How many lengths can you complete ?</p> <p>Assign a team to each of the five stations. Rotate teams as below.</p> <p>Round 1</p> <p>Bench Ball: Team 1 vs Team 2</p> <p>Indoor Rowing: Team 3</p> <p>Resting: Team 4</p> <p>Shuttle Runs: Team 5</p> <p>Round 2</p> <p>Bench Ball: Team 2 vs Team 3</p> <p>Indoor Rowing: Team 4</p> <p>Resting: Team 5</p> <p>Shuttle Runs: Team 1 Etc</p> <p>Complete ten minutes at each station. At the end of each period of activity record heart rate. (If there is not time for ten minutes at each station adjust times accordingly)</p>	<p>Establish a clear understanding of Cardiovascular Exercise.</p> <p>These tasks are designed to allow pupils to experience ten minute bursts of cardiovascular activity of varying intensities.</p> <p>Make sure that the display on the rowing machine monitors is showing projected metres [proj metres] as this feature informs the rower of the distance they will cover if they continue at their current pace. It will enable rowers to work towards doubling their 4 minute row distance.</p> <p>Ask pupils to record their heart rate at the end of each of the 10 minute activities.</p> <p>At the end of the 50 minutes ask pupils to put in rank order the different activities according to how hard they are to maintain. Use heart rate recordings as indicators of this. The order that they should come up with is:</p> <ul style="list-style-type: none"> • Rest, • Bench Ball (short bursts of activity followed by rest) • Indoor Rowing (continuous weight supported activity) • Shuttle Runs (continuous weight bearing activity) <p>Clarify how much cardiovascular activity people should be doing per week i.e. 3 x 30 mins per week at least!</p> <p>Reinforce how this contributes to the target of 1 hour of physical activity per day – this can include walking to school, playing sport, rowing, running etc.</p>
<p>Recording</p> <p>Add the distance you achieved in the ten minute row to your distance recording sheet.</p>	

Continuous Exercise Recording Sheet



Rower:

Activity	Heart Rate	Difficulty
Bench Ball		
Indoor Rowing		
Resting/Stretching		
Running		
Bench Ball		

Rower:

Activity	Heart Rate	Difficulty
Bench Ball		
Indoor Rowing		
Resting/Stretching		
Running		
Bench Ball		

Rower:

Activity	Heart Rate	Difficulty
Bench Ball		
Indoor Rowing		
Resting/Stretching		
Running		
Bench Ball		

Rower:

Activity	Heart Rate	Difficulty
Bench Ball		
Indoor Rowing		
Resting/Stretching		
Running		
Bench Ball		

Year 9 Lesson 3

Aim: To understand & experience interval training

Technique Objectives

- Understand & practice good technique
- Employ good technique in performance situations
- Know how to use the Indoor Rowing machine to improve cardiovascular fitness
- Be able to participate in a given training session
- Be able to design a training session designed by either themselves or their rowing partner

Resources

- Three star intensity method
- Distance Recording Sheet
- 3 star recording sheet
- Teachers interval training sample graph
- % intensity throw down cards

ICT Objectives

- Predict distance covered (proj metres)
- Identify own intensity levels using the 3 stars method
- Complete an interval training session
- Increase intensity /ave 500m

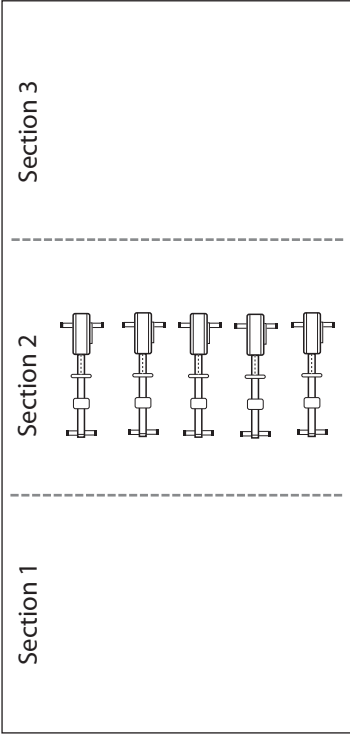
Challenges

- Complete a training session to your own intensity level

National Curriculum Programme of Study: (Athletic Activities: 5e)

1a, 1b, 2a, 2b, 2c, 3a, 4a, 4b, 4c, 10a

Year 9 Lesson 3




Pupil Activities	Teacher Notes
<p>Set up of machines</p> 	<p>Divide the area into three sections.</p> <p>In each section there should be a card that displays the intensity that the pupils should be exercising at.</p> <p>i.e. section 1 - 25%, section 2 - 50%, section 3 - 75%</p> <p>Supply a range of different equipment in Section 1 i.e. skipping ropes, cones, relay batons. Section 2 - indoor rowers & Section 3, area for pupils to create their own activity/game without any equipment.</p>
<p>Warm up Activity</p> <p>In pairs pupils complete the task for each area. This can be either given by the teacher or decided by the pupils themselves.</p> <p>They must gauge the levels of intensity required in each area for themselves.</p> <p>Pupils complete their own stretching sequence to prepare themselves for an interval training session.</p>	<p>The teacher may choose to tell pupils what they must do in each area or, they may allow the pupils to spend some time at the beginning of the lesson deciding what to do with the equipment in the areas in order to meet the work intensity levels required.</p>
<p>Task 1</p> <p>Over the course of the next five minutes pupils must complete ten strokes flat out on the indoor rower and record their best split (/500m). They may have a couple of attempts at this task. This can be found using the memory function.</p> <p>Complete the 3* intensity sheet by adding their flat out result to the top row of the recording sheet and then following the instructions on the sheet.</p>	<p>Pupils can have as many tries as they like to achieve their best split.</p> <p>Pupils not rowing should be recording or monitoring their class mates</p> <p>Note: Split (/500m) is measured as minutes:seconds therefore 1:50 plus 15 seconds becomes 2:05 and not 1:65 – many pupils make this mistake.</p> <p>With the group gathered around the board, together create an interval training session on a graph the same as the one the pupils have. There should be 6 x 30 second intervals of activity and 6 x 30 second intervals of rest.</p> <p>There is a sample session enclosed for reference. Simply choose different levels of intensity for the periods of work.</p>

continued 

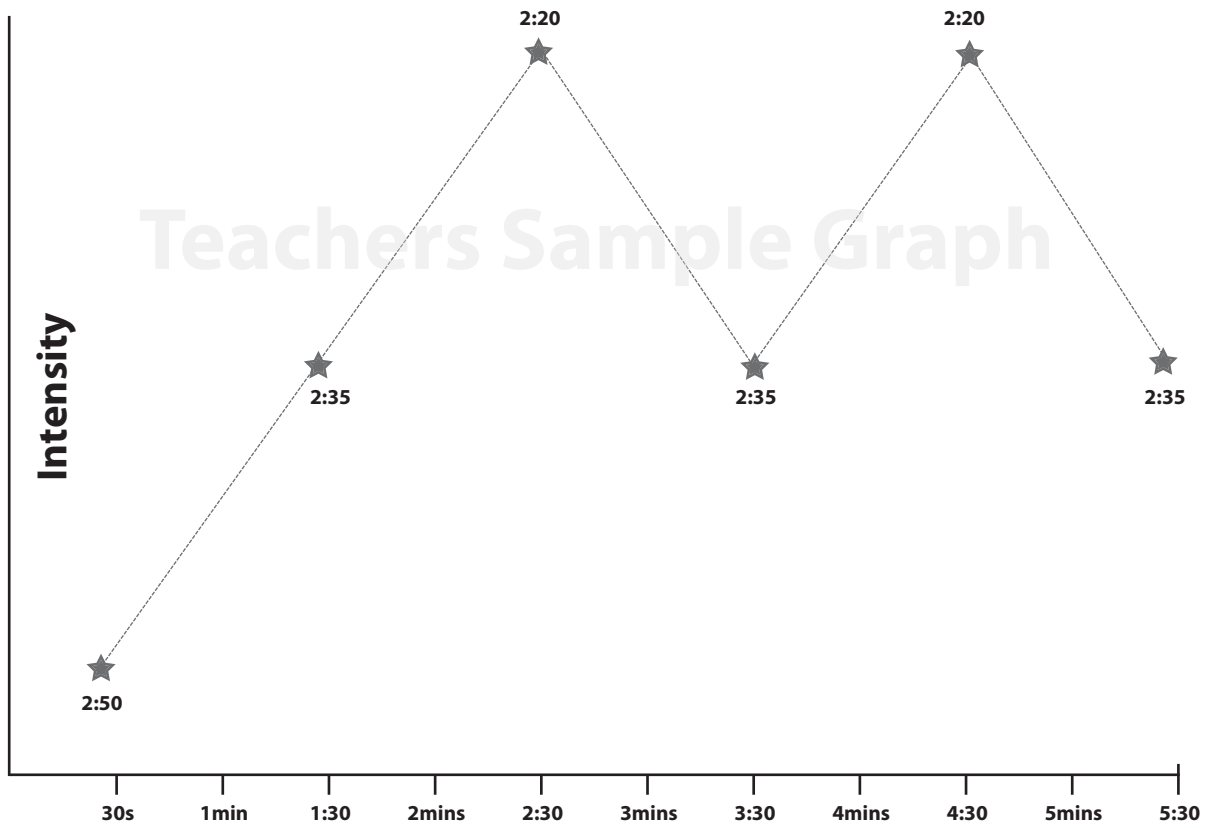
<p>Task 2 - Interval Training Session Class divided into 3 groups. Within the groups pupils must chose a work partner and number themselves 1 and 2.</p> <p>Section Activities Section 1: Game – pupils split into two teams, number 1s against number 2s. Play 7 mins each way bench ball, uni hockey or similar game. Section 2: Pupils complete the interval training session given by the teacher on their indoor rower, based on the 3* intensities graph they have completed on their sheet. The non rowing partner should call out the split for each work interval. In this way the non rowing partner can check that the rower is exercising at the correct intensity. Section 3: Pupils work with partner to create a different interval training session to the one that they have just completed using the blank graph sheet provided</p>	<p>Teacher introduces the concept of interval training to the class. Explain activities that will take place in each section (each section should last 15 minutes): Section 1: Game, 7 mins each way – choose a game that can be played in the area available. Section 2: Indoor Rowing Section 3: Display pupils' new interval training graphs on the wall in this area. Check that graphs display the basic principles of interval training, i.e. realistic work periods, rest periods, intensity levels. Save the graphs for the next lesson, collect in 3* recording sheets.</p>
<p>Recording Add the distance you achieved in the ten minute row to your distance recording sheet.</p>	

3 Star Recording Sheet

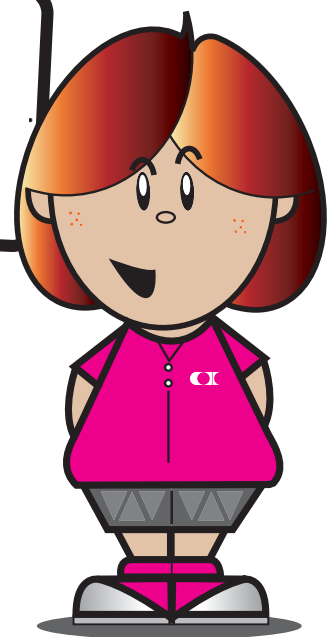
After a good warm up and stretch, row for 10 strokes as fast as you can. Record your fastest split on the sheet below.

Description	Split	Number of Stars
The fastest split from your ten stroke burst.		
Your fastest split plus 15 seconds		
Your fastest split plus 30 seconds.		



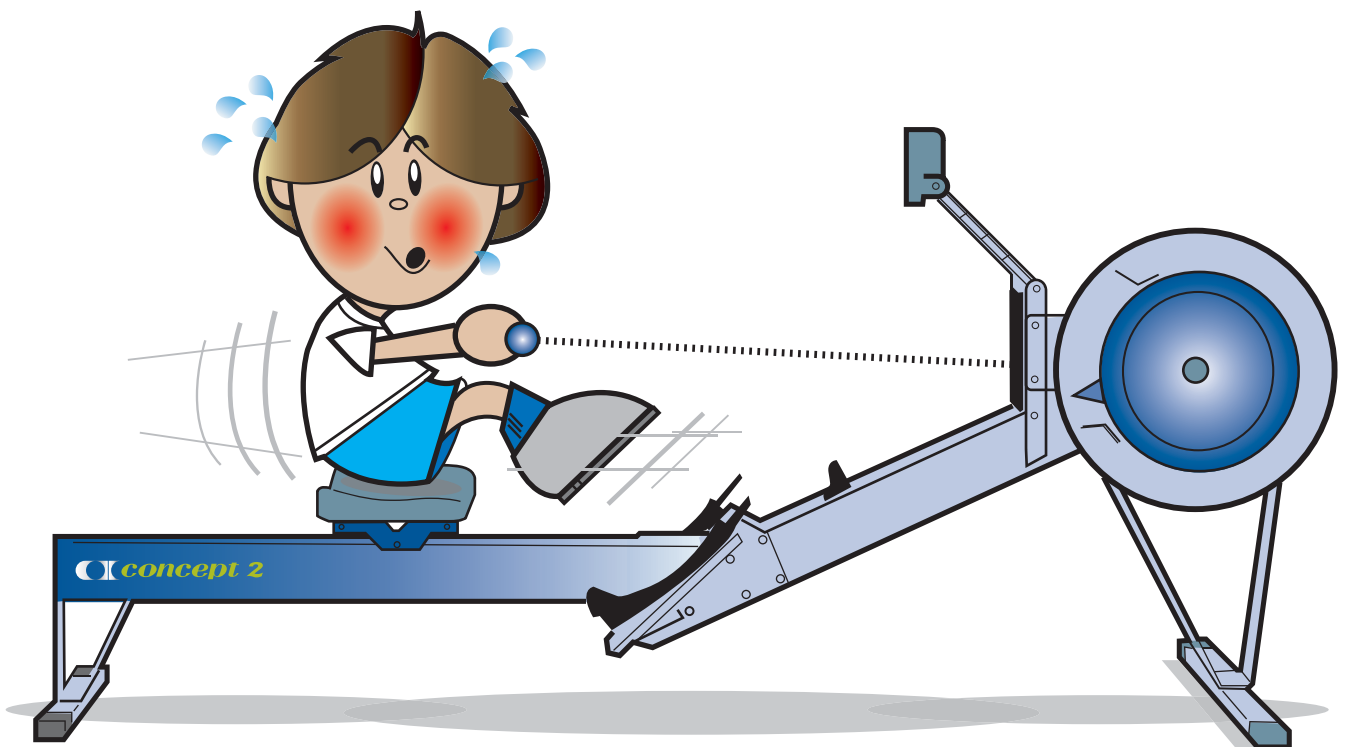


TIP!
Stick to your
target splits



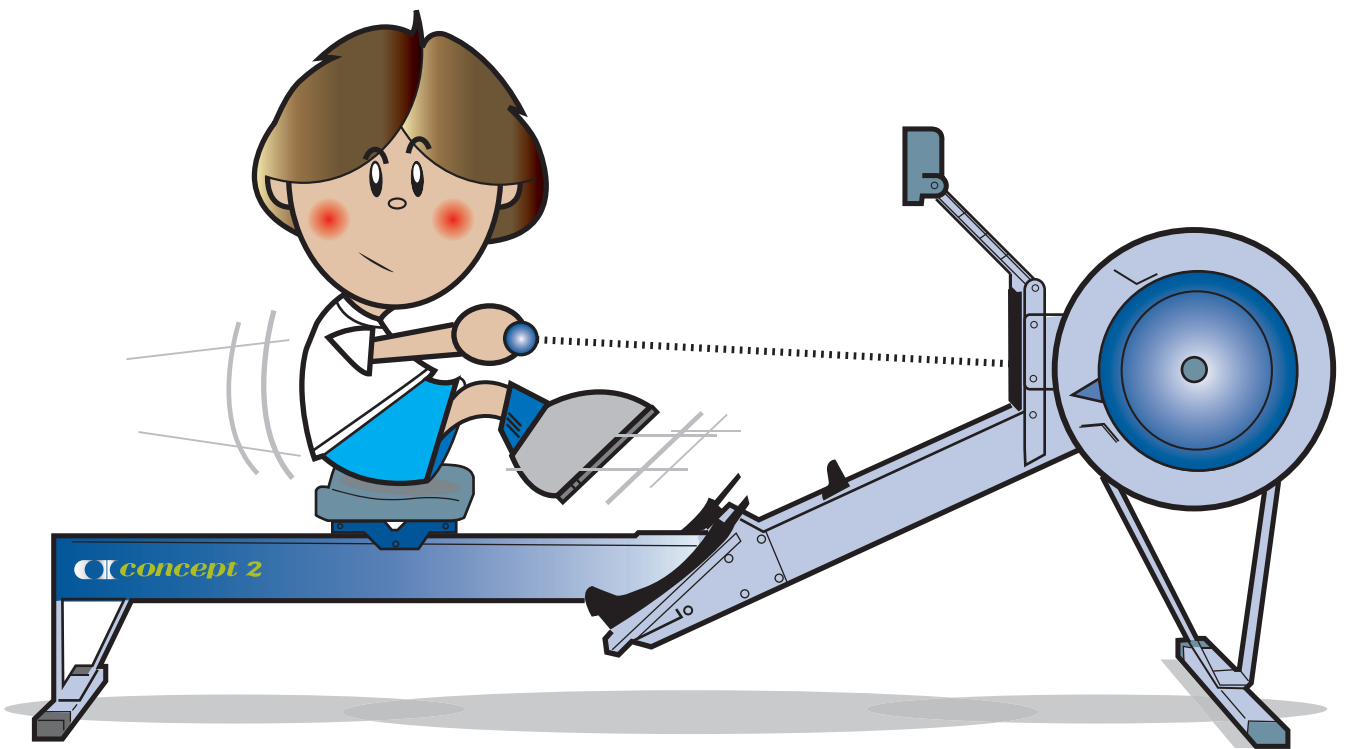
75%

Intensity



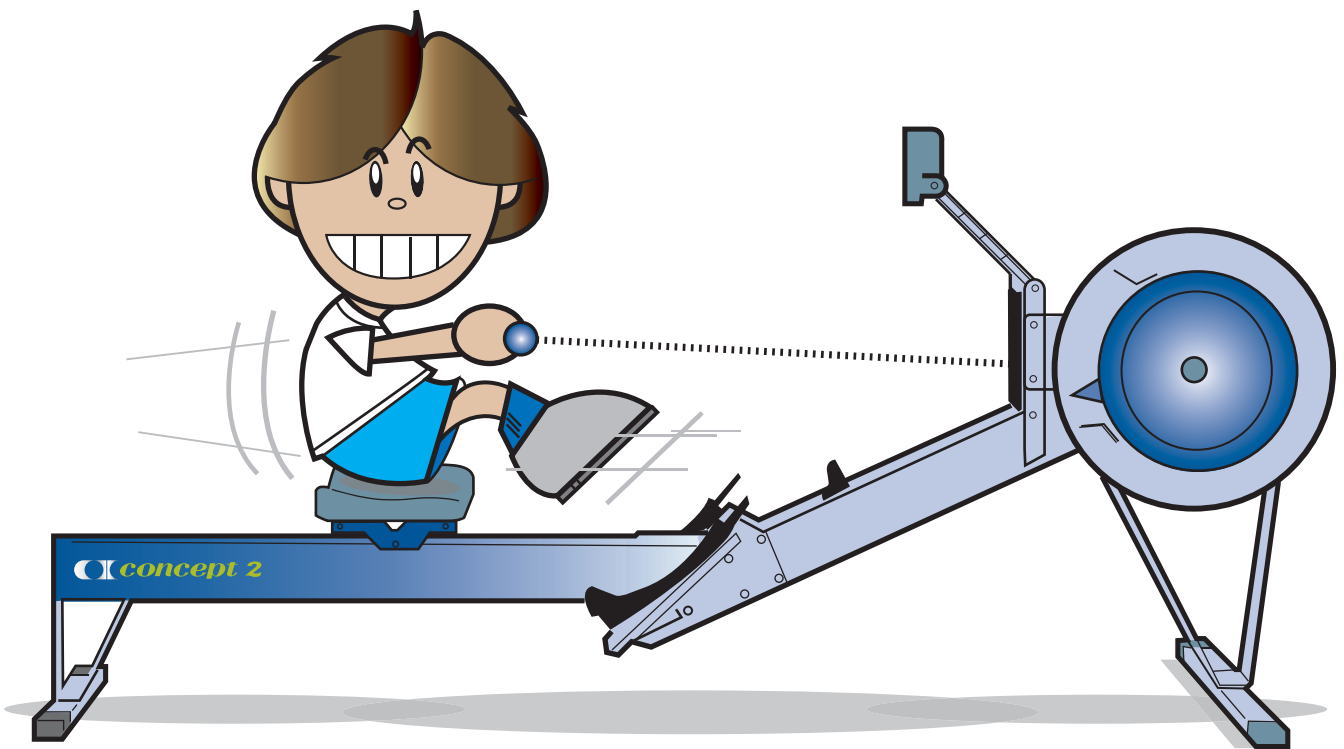
50%

Intensity



25%

Intensity



Year 9 Lesson 4

Aim: To understand & experience FARTLEK training

Technique Objectives

- Understand & practice good technique
- Employ good technique in performance situations
- Knowing how to use the Indoor Rowing machine to improve cardiovascular fitness.

Resources

- Distance recording sheet
- Interval training graphs from last lesson
- Triathlon Score sheet
- Stopwatches
- Skipping ropes
- SAQ ladders
- Cones
- Hoops

ICT Objectives

- Complete an interval, continuous & Fartlek training session

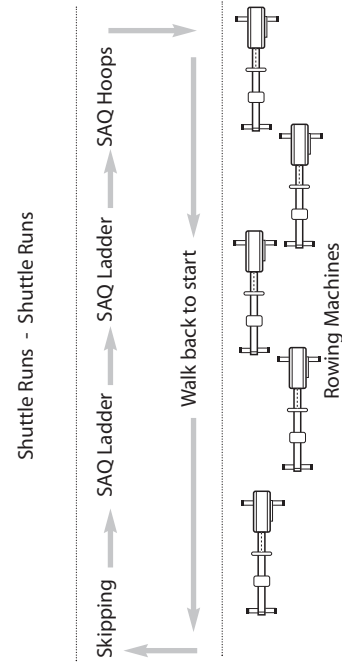
Challenges

- 4 minute challenge
- Triathlon

National Curriculum Programme of Study: (Athletic Activities: 5e)

1a, 1b, 2a, 2b, 2c, 3a, 3b, 4a, 4b, 4c, 10b

Year 9 Lesson 4

Pupil Activities	Teacher Notes
<p>Warm up Activity</p> <p>Pupils create their own warm up and stretching routine to prepare themselves for a 4 minute row.</p> <p>Set up of machines</p> <p>Section 1 Shuttle Runs - Shuttle Runs</p> <p>Section 2 Skipping → SAQ Ladder → SAQ Ladder → SAQ Hoops</p> <p>Section 3 Walk back to start → Rowing Machines</p> 	<p>Provide pupils with a variety of equipment to create their own warm up; Skipping ropes, bibs, cones, rowing machines, hula hoops, SAQ ladders and hurdles</p> <p>Split the area into three sections length ways, see suggested setup.</p>
<p>Class discussion:</p> <p>Randomly hand out interval training graphs from last week. Recap with pupils the basic principles of interval training. Pupils apply this knowledge to the graph they have and 'mark' the graph awarding 1 to 10 score based on the quality of the knowledge displayed.</p>	<p>Teacher to present the idea of FARTLEK as a different method of training to interval training. Using the example of the game that they played in lesson 3, establish how it is different, and introduce the principles of FARTLEK training (periods of work at different intensities).</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>Interval Training (Work, Rest, Work, Rest)</p> </div> <p>VS</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>FARTLEK Training (Intensity/ Speed Play)</p> </div> </div> <p>Show pupils activity stations for the triathlon circuit and as a class identify which methods of training each station uses.</p>

continued 

Methods of Training Triathlon

In teams of three pupils will complete a triathlon circuit of events. All three team members will work simultaneously. Each member will complete each task in rotation and record their score on the score sheet. In between each “work period” they will act as judge for an opposing team during their “rest period”.

- Give each member of the team a letter A, B, C. A will start on Rowing, B on Shuttle runs, C on SAQ FARTLEK circuit
- Assign each team an opposing team (one team will act as a judge while the other team performs their activities)
- Decide which team will work first and which team will judge first
- The 4 minute row provides the basis for the timing of the triathlon changeovers
- Each period of work is followed a period of rest as performer and judge change over
- Move on to next station

Important: Make all students aware of how the scoring systems work for all tasks, especially Task 1, which is designed to be a measure of improved rowing ability.

Task 1: Continuous training - 4 minute row

Set the monitor to 4 minutes. Monitor display should be set to projected metres (proj m).

Scoring: to score this task the rower must beat their previous 4 minute distance (completed in lesson 1). Each metre added = 1 point. If you do not achieve your target then 0 points are awarded.

Task 2: FARTLEK training – SAQ activity circuit

The pupils go through the circuit completing 50 skips, then over the SAQ course, and then walk back to the start. Repeat for 4 minutes

Scoring: each complete activity circuit counts as 1 point, the judge must keep score. An incomplete circuit scores 0.

Task 3: Interval training – Shuttle runs

Pupils will shuttle run for 30 seconds and then rest for 30 seconds. These intervals will be repeated for 4 minutes. Judges will control these intervals with the use of a stopwatch.

Scoring: add up the number of shuttle runs completed.

Recording

Add the distance you achieved in the ten minute row to your distance recording sheet.

Ensure that all pupils have their distance recording sheet from lesson 1 showing the distance that they achieved in the first 4 minute row. Pupils that missed the first session should be assigned the same distance as a pupil of similar somatotype and fitness level.

Set out a circuit as follows:



Supply stop watches and identify the lines that pupils should run between for their shuttle runs.

Team Name _____

Name	4 min row 1st attempt	4 min row 2nd attempt	Difference Score	Activity Circuit Score	Shuttle Run Score	Total

Team Rowing Total:

Team Activity
Circuit Total:

Grand Team Total:

Team Shuttle Run
Total:

Team Name _____

Name	4 min row 1st attempt	4 min row 2nd attempt	Difference Score	Activity Circuit Score	Shuttle Run Score	Total

Team Rowing Total:

Team Activity
Circuit Total:

Grand Team Total:

Team Shuttle Run
Total:

Baseline Fitness Assessment for Schools

Pupils arrive at secondary school with detailed academic assessments of past performance, but until recently there has often been little or no assessment of health and fitness or athletic potential.

The Concept2 Indoor Rower provides a safe and reliable way to measure the fitness of pupils, and has the added benefit of being a means to measure athletic performance and potential if required. Recorded results can also be used to provide evidence of your health and fitness monitoring programme for OFSTED.

Recorded results can then be used as a baseline, against which progress can be measured, needs assessed and any appropriate action taken whether remedial or performance based.

Concept2 recommends that baseline testing using the Indoor Rower is generally appropriate for pupils in years 5 and above. You will be aware that children develop at different rates and therefore while these tests are straightforward and safe under normal conditions, and for children of almost all abilities, you must use your own judgement in individual cases as to whether testing is appropriate for any given child and how to best incorporate it into your school.

Despite evidence of earlier maturation rates, it is imperative that pre-pubescent pupils, and girls in particular, are not put under undue physical stress



Fitness Testing using the Indoor Rower

For the following tests, set an appropriate Drag Factor for the age and ability of the athlete, suggestions for different age groups are set out below:

Guideline Drag Factor Settings

Junior ages	School year	Drag Factor
J11/12/Beginner	5 & 6	95-105 approx
J12/13	7 & 8	105-115
J13/14	9 & 10	110-120
J14/15	10 & 11	115-125
Junior Women	12 & 13	125-135
Junior Men	12 & 13	130-140

Note: Please bear in mind that children develop and mature physically at different rates and that you should take this into account when setting drag and designing an exercise regime for them.

Adults - World-Class Athletes

Lightweight women (performance athletes)	125
Heavyweight women (performance athletes)	130
Lightweight men (performance athletes)	135
Heavyweight men (performance athletes)	140

Note: These figures are those recommended for world-class athletes and are shown here only as a guide. You may wish to consider lower settings than these to get the most from your indoor rowing.

The Maximum Power Test

This test involves rowing seven strokes.

Row the first 2 strokes at moderate intensity to get the fan spinning, then row 5 more strokes at maximum power and speed. The aim is to achieve the fastest possible split time (lowest time/500m or maximum Watts output) for one stroke.

HINT: The best score could be on any of the 5 strokes and does not have to be the final one.

Ensure that pupils' technique is sound before undertaking the max power test because good technique will get the best score and prevent injury.

The 20sec Anaerobic Test

This test involves covering the farthest distance in a 20 second dash.

Set the monitor for a 20-second race and row flat out. The aim is to go as far as possible within the 20 seconds. Record the distance in metres covered during the test.

HINT: Rowing with full slide and good technique will help you achieve a greater distance rowed. Short strokes are less effective on this test.

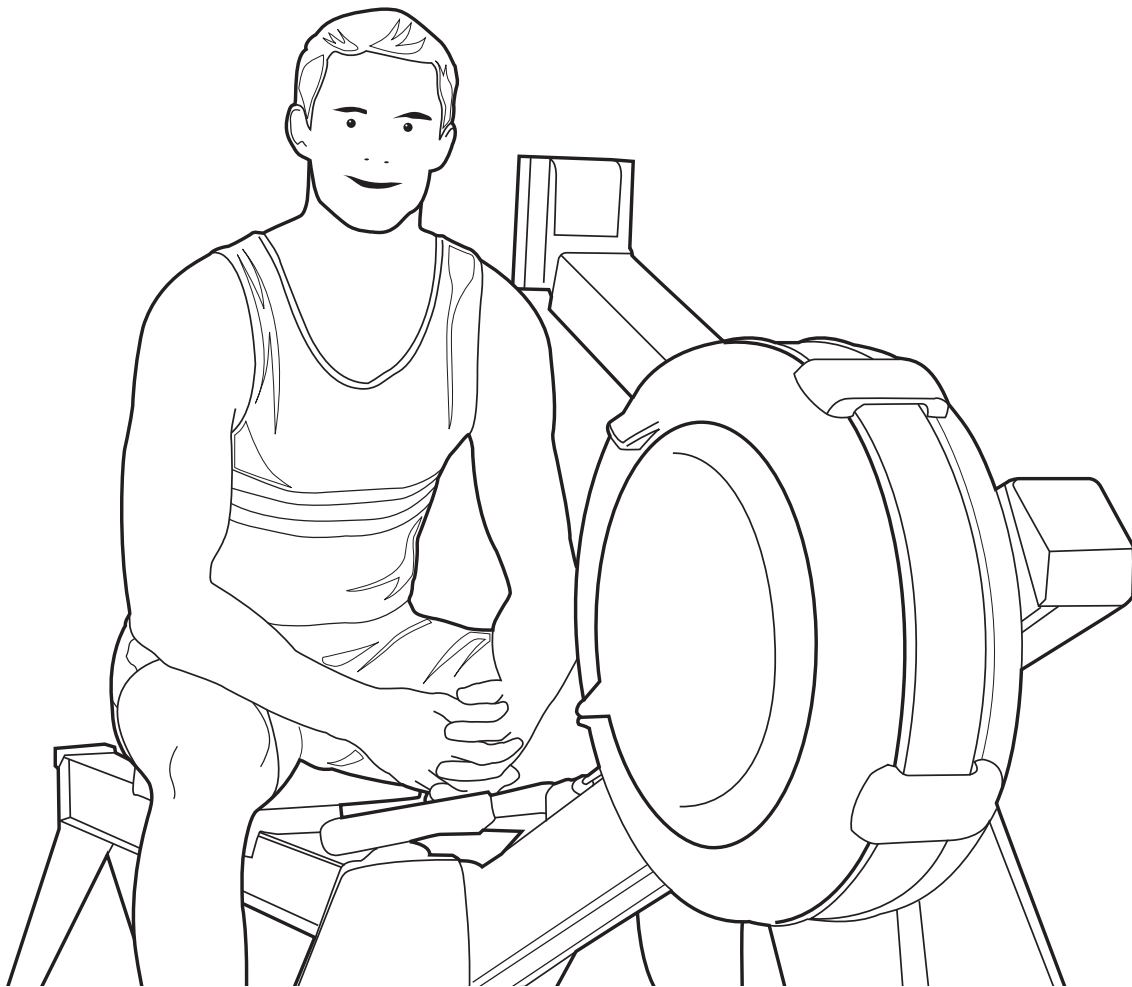
The Timed Aerobic Test

This test is a timed assessment. For pupils in years 5-11 the duration of the test is set and increases with age (see table below). Years 12 & 13 can attempt to row over 2000m.

Set the monitor time as indicated below for the appropriate age group. The aim is to cover as much distance in the given time as possible. Pupils should row flat out, full slide as fast as they can. Record the distance covered.

HINT: Pupils need to learn to pace themselves to get the best out of this test. An initial spurt followed by a fade is not desirable. Encourage a sustainable rate and pace.

Years	Test duration to set on monitor
5, 6 & 7	2 mins
8	3 mins
9	4 mins
10	5 mins
11	6 mins
12 & 13	2000 metres

**Please Note**

As with all exercise, please ensure that pupils are properly warmed up and in good health before embarking on any tests.

Training, Support and Incentives

Training

We are aware that indoor rowing is a new skill for many staff and that there may be initial apprehension about using it in school. We aim to supply support materials that are clear and easy to follow and use minimal jargon to help teachers get started.

The team offers a variety of training suitable for all staff, students and adults other than teachers who are interested in introducing Indoor Rowing into their school. Additional courses are available for those seeking to further extend their skills. Details are available from Concept2.

Support

The Concept 2 Education Team is committed to providing ongoing support and advice about all aspects of Indoor Rowing to schools. You can contact us via phone, fax, letter or e-mail.

Incentives

There is a wide variety of incentive schemes and motivational events organised by Concept 2 which can help to encourage and reward staff and pupils. Details can be found at **www.concept2.co.uk/schools**.

Up to date information on every aspect of Indoor Rowing is available on the Concept 2 web site at **www.concept2.co.uk**

Personal Logbook and Online World Ranking

The Personal Log will allow you to:

- enter and keep track of all of your workouts online
- see a list of your personal world ranking entries
- access your personal pace chart history, comparing workouts of similar distance or time with each other
- see weekly and monthly summary statistics as well as total metres and time
- export your log to a text file
- see average daily metres since your first row of the season

All you have to do is go to

www.concept2.com/sranking03/log_start and then click "Register" under New Users at the left to get started.

The Online World Ranking is where indoor rowers all over the world:

- see how they stack up next to their competition
- submit their own results to the ranking
- get motivated by terrific competition

All rankings are sorted by age, gender and weight categories according to distance or time rowed. The current ranking events are:

500 Metres

1000 Metres

2000 Metres

5000 Metres

6000 Metres

10000 Metres

21097 Metres (half marathon)

42,195 Metres (marathon)

100,000 Metres (team event)

4 minutes (kids category)

30 minutes

60 minutes

To submit a piece for the ranking, you must:

1. Set up a personal logbook profile
2. Enter a workout result in your logbook
3. Click on the "rank" link next to the result in your logbook.

When we first put the ranking online several years ago, we expected people to put in one or two entries into the database. Five years and some hundreds of thousands of entries later - and we've realized we were far off the mark. The Online Ranking and Personal Log has quickly become the most interactive rowing motivator that we know of. Have fun!

Distance Award Scheme

To apply for a Concept 2 Distance Award the individual must fill in a training log, the first and last page, signed by either a gym instructor, coach or teacher should then be sent in to Concept 2 Ltd with the person's name and address and a medal or badge and a certificate will be dispatched to them as soon as possible.

See: www.concept2.co.uk/rowing/distance_award_scheme.php

The awards available are:

Junior Youth (people 18 & under)		Adults	
Distance	Award	Distance	Award
500m	Certificate	1 Million	Medal
1,000m	Certificate	3 Million	Medal
5,000m	Certificate	5 Million	Medal
10,000m	Certificate	10 Million	Medal
20,000m	Certificate	15 Million	Medal
25,000m	Badge	20 Million	Medal
50,000	Badge	30 Million	Medal
100,000m	Badge	40 Million	Medal
250,000m	Badge	50 Million	Medal
500,000m	Badge		
1 million	Medal		

A Distance Award T-Shirt can also be purchased for each distance.

Please send applications for the awards to:

Distance Award Scheme
 Concept 2 Ltd
 Vermont House
 Unit 5 Nottingham South & Wilford Ind. Est.
 Ruddington Lane
 Wilford
 Notts
 NG11 7HQ

Schools Indoor Rowing League (SIRL)

The Concept2 SIRL is a national tournament in which boys and girls race for their school in year group teams, from year 5 to 13, in relay format on one Concept2 Indoor Rower. There are six rounds, three in the winter term and three in the spring, and each round has a different race format. Broadly speaking, as the season progresses the challenges get tougher as hopefully the competitors get fitter!

You can choose to organise your teams to race in or out of school hours - all of the challenges can be completed within time allocated for lessons - the choice is yours. Team personnel can change from round to round, to accommodate illness or injury, and the challenges can be completed at any time during each month.

No travelling is required to compete as team's race in their own school and enter their results into this website. Round by round and overall results are then available for each league within seconds of each round closing. Entry is free, and teams can join at any point. All you need to do is register your team online at www.concept2.co.uk/league and make sure you enter your results before the closing date of each round.

Launched in 2005, the league attracted 325 teams in its first season, 1,639 teams in the second season, and 4,227 teams in its third season. This equates to over 27,000 competitors from throughout the British Isles, making it the world's biggest rowing tournament. The league has 32 different events, 16 in the relay teams of 4 and 16 in teams of 8

- Eights Format – Within the site there are past results and records to give some idea of how long each challenge will take.

Eights	Years 10/11/12-13/Adults	Years 6/7/8/9
1 - Sept	2,000m - 8 x 250m	1,000m - 8 x 125m
2 - Oct	3,200m - 8 x (2 x 200m)	1,600m - 8 x (2 x 200m)
3 - Nov	4,000m - 8 x 500m	2,000m - 8 x 500m
4 - Jan	6,000m - 8 x (3 x 250m)	3,000m - 8 x (3 x 250m)
5 - Feb	8,000m - 8 x (2 x 500m)	4,000m - 8 x (2 x 500m)
6 - Mar	16 mins - 8 x (4 x 30secs)	16 mins - 8 x (4 x 30secs)

see www.concept2.co.uk/league for the closing dates for the current rounds

- Fours Format - The Fours competition offers a further 16 race categories for all year groups which mirrors the existing Eights tournament.

Fours	Years 10/11/12-13/Adults	Years 6/7/8/9
1 - Sept	1,000m - 4 x 250m	500m - 4 x 125m
2 - Oct	1,600m - 4 x (2 x 200m)	800m - 4 x (2 x 200m)
3 - Nov	2,000m - 4 x 500m	1,000m - 4 x 500m
4 - Jan	3,000m - 4 x (3 x 250m)	1,500m - 4 x (3 x 250m)
5 - Feb	4,000m - 4 x (2 x 500m)	2,000m - 4 x (2 x 500m)
6 - Mar	8 mins - 4 x (4 x 30secs)	8 mins - 4 x (4 x 30secs)

see www.concept2.co.uk/league for the closing dates for the current rounds

In addition:

- Every team and individual will have their own web page that they can upload race reports, photos, stories etc... about their team, their school and their efforts
- There is a male and female teacher/parent category to allow enthusiastic dads, mums and staff to have a go
- Teams and individuals from outside Britain and Ireland can enter, although they are not eligible for the main prizes
- A trophy to the winners and gold, silver and bronze medals will be awarded to the top three British/ Irish teams in each category (10 medals for a team of 8, 5 medals for a team of 4)
- We have a Schools Message Board for you to discuss school indoor rowing matters on

For further information, rules and results please visit the School League page on our website at: www.concept2.co.uk/league

Online Ranking and Challenge Series

The Concept2 Online Ranking is an excellent way to log all your training. Not only can you record every metre you row, but you can also see how you stack up compared to the rest of the world over each of the Ranking distances. For more information about online ranking visit www.concept2.com/sranking03

Concept2 have also launched the Challenge Series which is an individual league, ranking and a monthly challenge all rolled into one with a different challenge each month between September and March.

The challenge series is free to enter, and with age categories from below 20 to over 70, the Series offers prizes along the way to incentivise participation as well as reward the top performers

Month	Challenge	Distance/Time	Entries Close (5pm)
Sept	O'Neill Fitness Test	4 minutes	1st October 08
Oct	Olympic Race Distance	2,000 metres	1st November 08
Nov	One Mile	1,609 metres	1st December 08
Dec	Xmas Great Escape	5,000 metres	1st January 09
Jan	Gut Buster	10,000 metres	1st February 09
Feb	Classic Indoor Race	2,500 metres	1st March 09
Mar	Boat Race Record	16 mins 19 secs	1st April 09

To participate and for more information go to www.concept2.co.uk/challengeseries

Indoor Rowing Races

The sport of indoor rowing was created in 1981 when Concept 2 developed their first rowing machine and within a year the first world championship had taken place. To this day the sport is exclusively performed on Concept 2 Indoor Rowers. There are annual World and European Championships and National Championships in almost every European country.

The British Championship is the world's largest indoor rowing race attracting in excess of 3,000 competitors making it the UK's largest indoor sporting event. There are also English, Scottish, Welsh and Irish National Championships.

One of the unique aspects about indoor rowing races is the degree of analysis available on everybody's performance after the race. Below is an example of an athlete's performance profile from the 2005 British Indoor Rowing Championship.

T Cannon M Open Lwt

Distance	500m	1,000m	1,500m	2,000m
Time	01:37.4	03:15.5	04:54.2	06:33.5
Split	01:37.4	01:38.1	01:38.7	01:39.3

Av 500m Pace 01:38.4

For dates, entries and informaion visit www.concept2.co.uk/racing

Funding Indoor Rowing

This section is divided into 3 areas. It provides 10 useful hints and tips that all organisations should consider before assembling a project and funding application. It includes some case studies of existing projects, which have successfully applied for funding, and lastly, it includes a brief summary of various sources of funding which may be available to support your project

Hints and Tips

This section provides ten useful hints and tips when developing your project and applying for funding.

1. Be clear and concise about what the project is, why it is needed and what it will achieve. Try to continually emphasise the main benefits of the project throughout the entire application process from the initial telephone enquiry to post-funding project evaluation form.
2. Ensure that your project is well thought out and SMART (specific, measurable, achievable, realistic, time scaled) in every way to have a good chance of securing funding.
3. Raise as much match funding as possible through general fund raising and contributions made by other organisations and groups involved. It is normally required for most funding applications, and demonstrates a real commitment to deliver a successful project.
4. Involve other groups and clubs in your project where appropriate as this will strengthen and sustain your project in terms of delivery, and links to other projects and programmes.
5. Check the eligibility criteria fully before applying to a fund, specifically relating to the type of organisation, which can apply and the type of projects and themes currently being supported. For instance some funds may only be open to registered charities and most are unlikely to fund mainstream school activities.
6. Be as innovative and creative as possible and think about the current hot topics and priority areas which will prompt organisations to want to fund your project – try to make your project stand out from other applications whilst ensuring that you can deliver it.
7. Consider applying to more than one fund to support different elements of your project. One might only support training, with another only supporting a particular target group. Think about how you could break your project up into different elements, which would meet each fund's requirements.

8. Assemble all supporting documentation to be included with your application. Most applications will require a copy of a governing document, and most recent accounts as a minimum requirement. Others will require more information including copies of other policies such as a child protection policy, as well as a more comprehensive project file in some cases.
9. The following organisations may be able to provide ideas, as well as advice and support on project development and funding. Also, remember to research funding organisations at a local level as some will only support projects in defined geographical areas.

Central Council for Physical Recreation – www.ccpr.org.uk

Community Foundation Network – www.communityfoundations.org.uk

Department for Culture, Media and Sport – www.culture.gov.uk

European Sponsorship Association – www.europeansponsorship.org

Learning & Skills Council – www.lsc.gov.uk

National Association of Councils for Voluntary Services –
www.nacvs.org.uk

National Council for School Sport – www.ncss.org.uk

Office of the Deputy Prime Minister – www.communities.gov.uk

Sport England – www.sportengland.org

UK Sport – www.uk sport.gov.uk

Youth Sport Trust – www.youthsporttrust.org

10. Make sure you set aside sufficient time to develop your project. It can take time to assemble projects and funding applications and so it may be worth considering appointing a Consultant to identify funds and assemble applications on your behalf. They will help ensure continued momentum and project delivery. Concept2 recommends Rachel Scott at RMS Sports Consultants who can provide useful advice and support:

www.rmssportsconsultants.co.uk | 07970 679357

Case Studies

For case studies on funding and fundraising please visit the funding and fundraising page at www.concept2.co.uk/schools

Sources of Funding

This is only a general guide for information, and changes may occur at anytime to any of the funds listed. If you wish to make an application to any of them you are strongly advised to research each one fully to see if you are eligible before making an application.

Awards for All

This is a lottery grant scheme aimed at local community groups, clubs, leagues and voluntary associations. It awards grants of between £300 and £10,000 to support projects, which enable people to take part in art, sport, heritage and community activities, as well as projects that promote education, the environment and health in the local community.

Web site: www.awardsforall.org.uk

BBC Children in Need

It aims to positively change the lives of disadvantaged children and young people in the UK, including those who are affected by illness, distress, abuse or neglect, disability, behavioural or psychological impairment to those living in poverty or situations of deprivation. It provides grants to organisations that are not for profit and work with disadvantaged children and young people.

Web site: www.bbc.co.uk/pudsey

Bernard Sunley Charitable Trust

The foundation does not publish specific areas of interest but grants usually fall into particular categories such as community, youth, health, leisure, welfare and education. Only registered charities can apply for funding with no limit set on the size of grants.

Web site: no web site available but contact details available on request.

Big Lottery

The Big Lottery Fund replaced the New Opportunities Fund and National Lottery Charities Board, which made grants under the Community Fund. It is responsible for distributing half of the money for good causes raised by the National Lottery and bringing real improvements to communities and the lives of people most in need. It covers health, education, environment and charitable purposes, with open grant programmes available to support various voluntary and community organisations.

Web site: www.biglotteryfund.org.uk

Biffa

Biffa is a landfill tax credit funded scheme, which offers three levels of support including the small grants scheme, main grants scheme and flagship scheme. The small grants scheme, provides grants between £250 and £5,000 to enable communities to improve local amenities and conserve wildlife, and the main grants scheme which provides grants between £5,001 and £50,000 to improve community facilities for sporting achievement, lifelong learning and community involvement.

Web site: www.biffaward.org

Camelot Foundation

Launched in 1996 by Camelot Group Plc, operator of the National Lottery. Its funding programme - 'Transforming Lives' wants to develop new approaches and creative ideas for re-connecting marginalised young people to the mainstream of UK life. Priority groups include young parents or those at risk of becoming young parents, young exiles newly arrived in the UK, young people with mental health problems, and young disabled people.

Web site: www.camelotfoundation.org.uk

Coalfields Regeneration Trust

The trust awards grants across British coalfields and runs the following grant programmes; Bridging the Gap – for requests between £500 and £10,000, and Main Grants – for requests between £10,000 and £300,000 in England and £10,000 and £100,000 in Scotland and Wales. The main funding themes include supporting communities, learning communities, enterprising communities, and supporting people into work with applications being welcome from new or existing groups and organisations who are contributing to the regeneration of coalfield areas and communities.

Web site: www.coalfields-regen.org.uk

Comic Relief

Comic Relief operates 3 grant programmes within the UK including the Red Nose Day Programme, Sport Relief and Robbie Williams' Give It Sum Fund. Sport Relief is the most applicable for a sport related project with funding spent in two ways including large grants through the Young People & Conflict Programme and small grants through the Community Foundation Programme. The Conflict Programme aims to support projects working to reduce tension and conflict and tackle divisions between young people using inclusive sports activities. The Community

Foundation Programme provides small grants of up to £5,000 to support projects that use sport and exercise to strengthen communities and provide opportunities for people who are excluded or disadvantaged.

Website: www.comicrelief.com

Community Chests

Community Chests offer small grants of up to £5,000 to community groups for projects to help them renew their own neighbourhoods. The community chest programme focuses on the most deprived neighbourhoods and marginalised groups such as BME, youth to enhance community provision and deliver community activities.

Web site: www.communityfoundations.org.uk

Co-op Group Community Dividend Fund

The fund supports projects that benefit local communities. Community and voluntary groups as well as charities can apply for funding up to £5,000 to support projects that benefit the local community, around issues such as combating crime and anti-social behaviour, promoting education and improving health for disadvantaged groups.

Web site: www.co-operative.coop/en/community-fund

Community Investment Fund

The Community Investment Fund is the National Lottery funding available through the 9 regions in Sport England. It aims to increase participation in sport amongst priority groups, identified by the regional sports boards. The majority of funds will be committed to targeted projects with some available for community projects through an open process. The projects that receive funding will be required to provide significant increases in sports participation and demonstrate integration with health, education and community development.

Web site: www.sportengland.org

Foundation for Sport and the Arts

The Foundation distributes money donated by Littlewoods Gaming into a wide range of sports and artistic causes and supports a wide range of activities where there is clear beneficial impact across the community. The Foundation's main goal at this time is to encourage active participation by young people, where an average award of up to £40,000 will help to create or maintain facilities and opportunities for the general community or will assist arts or sports provision.

Website: www.thefsa.net

Hedley Foundation

The foundation aims to assist and encourage development and change. Only registered charities can apply with most grants being capital or one off in nature. The main objective is young people including their education, training, health and welfare as well as disabled people and the terminally ill.

Web site: www.hedleyfoundation.org.uk

Help Yourself!

This was created by Save the Children and British Gas and aims to support adults and young people working together. Grants are between £1,000 and £3,000 for projects and activities that help children and young people who are excluded and isolated as well as those living in areas of deprivation.

Website: www.helpyourselves.org.uk

Lloyds TSB Foundation for England and Wales

This fund makes grants of up to £10,000 to recognised charities to help people, especially those who are disadvantaged or disabled, to play a fuller role in communities. It supports charities, which contribute to community life, and aims to promote capacity building and strategic and collaborative working with the voluntary sector.

www.lloydstsbfoundations.org.uk

Local Network Fund for Children and Young People

This fund can provide grants up to £7,000 to help disadvantaged children and young people aged 0 – 19 years by investing directly in the activities of local community and voluntary groups. The fund encompasses four themes including aspirations and experiences, economic disadvantage, isolation and access and children's voices.

Web site: www.everychildmatters.gov.uk/youthmatters/aiminghigh/

National Sports Foundation

A government led initiative designed to encourage partnerships between private investors and not for profit organisations to deliver community sports projects. There are three priority areas for funding including Fit for Sport, 2012 Kids, and Women Into Sport. A minimum of £50,001 of sponsorship is required which would be matched on a pound for pound basis by the foundation.

Web site: www.nationalsportsfoundation.org

Percy Bilton Charity

This is a grant making trust, which makes grants to support organisations and individuals in need throughout the UK. Registered charities assisting disadvantaged youth, people with disabilities and older people may apply for a grant towards capital expenditure.

Web site: www.percybiltoncharity.org.uk

Peter Harrison Fund

The fund has various grant programmes available but the Opportunities through Sport, a nation-wide programme open to registered charities throughout the UK is best placed to support a sports related project. This programme aims to support sporting activities or projects, which provide opportunities for people who are disabled or otherwise disadvantaged to fulfil their potential and to develop other personal and life skills.

Web site: www.peterharrisonfoundation.org

Princes Trust

The Princes Trust Group Award provides small grants between £1,000 and £5,000 to disadvantaged young people aged 14 – 25 years to set up projects that will make a real difference, to life in the local community.

Website: www.princes-trust.org.uk

Sportsmatch

Sportsmatch is government funded to support the development of grass roots sport in England. It makes awards to community organisations running new projects aimed at increasing participation in sports at community level by matching commercial sponsorship money up to £50,000 invested in community sport on a pound for pound basis.

Web site: www.sportsmatch.co.uk

Tesco Charity Trust

Community awards are available to benefit local organisations whose core work supports children's education and welfare including special needs schools, children and adults with disabilities and elderly people. Awards are one-off donations and range between £1,500 and £5,000.

Web site: www.tescocorporate.com/charitiesandfundraising.htm

Variety Club of Great Britain

The Variety Club Children's Charity aims to help sick, disabled and disadvantaged children and young people up to and including the age of 18 years, who are resident within the UK. Applications can be made from non-profit making groups working with children including statutory bodies such as schools and hospitals and registered charities.

Web site: www.varietyclub.org.uk